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ABSTRACT

Eleven papers present theoretical models, clinical impressions, and research findings of a study at the University of Wisconsin concerned with developmentally handicapped persons who also have emotional and behavioral disorders. Titles and authors are as follows: "Meeting the Mental Health Needs of Mentally Retarded" (W. Gardner and C. Cole); "Deinstitutionalization In the 80's--When the Bucks Are Thin, Cooperation Is In" (O. Karan); "Habilitation Programming for Behaviorally Disordered Mentally Retarded Adults: Just Because It Feels Right Does Not Mean It Is" (O. Karan); "A Structured Learning Habilitation Approach: Use with the Mentally Retarded Presenting Emotional and Behavior Disorders" (W. Gardner and C. Cole); "Drug Givers, Takers and Monitors: Introducing a Behavioral-Chemical Intervention and Monitoring Strategy" (R. Schalock); "Who Has the Problem?--An Ecological Perspective on Habilitation Programming for Behaviorally Involved Persons" (O. Karan and R. Schalock); "Selecting Intervention Procedures: What Happened to Behavioral Assessment?" (W. Gardner and C. Cole); "Assessing Vocational and Community Living Skills: An Ecological Model" (O. Karen and R. Schalock); "Teaching Self-Management Skills to the Mentally Retarded: A Critical Review" (C. Cole and W. Gardner); "Reduction of Disruptive Behaviors in Mentally Retarded Adults: A Self-Management Approach" (W. Gardner and C. Cole); and "Self-Management of Disruptive Verbal Ruminations by a Mentally Retarded Adult" (W. Gardner et al). (DB)

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Habilitation Practices with the Developmentally Disabled Who Present Behavioral and Emotional Disorders

Orv C. Karan and William I. Gardner, Editors

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Research and Training Center in Mental Retardation
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HABILITATION PRACTICES WITH THE DEVELOPMENTALLY DISABLED WHO PRESENT BEHAVIORAL AND EMOTIONAL DISORDERS

Edited by

Orv C. Karan and William I. Gardner

Research and Training Center in Mental Retardation

Harry A. Waisman Center on Mental Retardation
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University of Wisconsin
Madison, Wisconsin

1983

PREFACE

During the last decade research with, and on behalf of developmentally handicapped adults has substantially contributed to the development of effective habilitation technologies. Those with the additional handicaps of emotional and behavioral disorders, however, have not been well represented in this research. In the few reported studies in which such individuals were included, the habilitation methods used tended to be restrictive and punitive. In practice, the developmentally handicapped individual with emotional and behavioral disorders often falls between the cracks of the special education, rehabilitation, and mental health systems. One unfortunate outcome is that, as a group, these individuals are among those who are the least likely to be deinstitutionalized and the most likely to be either unserved or underserved by community programs.

During the last several years the University of Wisconsin Research and Training Center in Mental Retardation has pursued a line of research focused both on individuals who fail to fit existing service systems and on the systems themselves. Developmentally handicapped persons with emotional and behavioral disorders have been one of the main clinical populations to whom much of this research has been directed.

In this monograph we share some of the theoretical models, clinical impressions, and research findings which have evolved from our work to date. It is our hope that this will serve to guide and stimulate others in conducting more research, service, and training in this generally neglected but critically important area.

This monograph could not have been completed without the assistance of several key individuals. In particular, special thanks are due to Dr. Jules Rosenthal for his assistance with the technical aspects of this volume. For their part in encouraging and supporting the research core area from which this volume was derived, we extend our appreciation to all the members of the Wisconsin Regional Rehabilitation Research and Training Center Advisory Council. And finally, a very special thanks is due to Ms. Donna Pauls for her generous and cheerful assistance in preparing both the drafts and final version of this volume.

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PART I - CONSIDERATIONS

It has become increasingly evident that living in the community, as opposed to an institution, does not automatically insure a person's participation in his/her living arrangement in a personally satisfying and productive manner. Too frequently, placement is made before either the person or those responsible for the placement have been adequately prepared for either the new or the continuing daily stresses associated with life in the community. For those individuals who have histories of behavioral and/or emotional disorders new or continuing sources of stress may serve to stimulate the types of behavioral and emotional reactions which are contrary to the accepted standards of most community settings.

To date, the approaches used to meet the mental health needs of the developmentally handicapped have generally been ineffective. Chemotherapy, while it can be a valuable adjunct to habilitation, is less than effective if it is the only specialized treatment used or if it is controlled by persons not directly involved in the ongoing training. Further, the behavioral procedures that are available have either not been successfully applied with adults in community settings, or they involve the use of punishment procedures of questionable acceptance or feasibility.

In their article entitled "Meeting the Mental Health Needs of the Mentally Retarded," Gardner and Cole suggest that the identification and successful community programming of mentally retarded persons with mental health difficulties is a major area of unmet need and relates directly to quality of life concerns. After reviewing the various sides of the problem they then propose a number of recommendations for successfully addressing the mental health needs of mentally retarded citizens.

Acknowledging the need to create methods for reducing the transitional shock created by relocating individuals from institutional to community environments, Karan, in his article entitled "Deinstitutionalization in the 80's - When the Bucks are Thin Cooperation is In," identifies obstacles in both institutions and in the community which interfere with successful deinstitutionalization. Since those now living in institutions are more severely handicapped than those already deinstitutionalized, it is to be expected that their adjustment difficulties will be greater when their community placement occurs. Therefore, Karan argues, more attention needs to be given to methods by which smooth transitions can occur. His article describes a transitional model in which the move from the institution to the community occurs in a gradual, planned fashion rather than abruptly as is normally the case.

In the article "Habilitation Programming for Behaviorally Disordered Mentally Retarded Adults: Just Because It Feels Right Does Not Mean It Is," Karan cautions that those who are charged with the responsibility for working with behaviorally disordered adults must be aware of the powerful roles their own biases and values have in influencing program development. Karan warns against using our "gut as our guide" in program development and recommends that the more appropriate approach is one of going back to basics which includes an understanding of the functionality of the person's behavior. From this perspective, his main recommendation for staff who are involved in programming for behaviorally disordered adults is to act therapeutically rather than react emotionally.

Gardner and Cole then review the history and characteristics of mentally retarded persons displaying emotional disturbance. Once done, they lay the foundations for their "Structured Learning Habilitation Model," the central feature of which is an educative habilitative approach to the treatment of emotional and behavioral difficulties of the mentally retarded as opposed to the more traditional forms of psychotherapy. The general guidelines provided by their discussion are exemplified in articles appearing later in this volume where the model's application to clinical treatment is demonstrated.

The last article in this section entitled "Drug Givers, Takers, and Monitors: Inducing a Behavioral and Chemical Intervention and Monitoring Strategy" by Schalock addresses a problem common to those involved in providing services to and for mentally retarded adults with emotional and/or behavioral disorders, namely balancing the influences and effects of chemical and environmental interventions. Schalock describes a strategy for creating this balance and then demonstrates it through a series of brief clinical case studies. The behavioral chemical strategy he describes has been used to monitor drug effects on specific behaviors, reducing in some cases the dosages prescribed for behavioral control, sensitizing staff to their role in monitoring and evaluating drug effects, and improving the interface between agencies, staff, and generic medical and mental health professionals.

MEETING THE MENTAL HEALTH NEEDS OF THE MENTALLY RETARDED

William I. Gardner and Christine L. Cole

During the 1970's, the dominant trend in services to the mentally retarded was that of deinstitutionalization and the development of networks of alternative residential and related support services to insure successful placement in the community. The basic underlying purpose of deinstitutionalization is that of providing more normalized physical and psychosocial environments, with the expectation that such will insure that the mentally retarded will live more personally satisfying and socially productive lives.

Mere placement in a community setting, however, does not insure that the mentally retarded individual is in fact participating in his/her new living arrangement in a personally satisfying and socially productive manner. The very process followed in many states of quickly accomplishing deinstitutionalization and other normalizing service-delivery programs such as mainstreaming has exacerbated rather than reduced personal adjustment difficulties in many individuals. Numerous persons placed from institutional to community settings or from self-contained or segregated programs into mainstreamed or integrated services have not been prepared adequately for these new, sometimes highly stressful, experiences. As a result they hardly could be said to be adapting successfully to this new living or service-delivery arrangement and experiencing a personally satisfying life. Many remain passive, dependent, unmotivated, socially inept, highly anxious, compulsive, ritualistic, depressed, and/or socially withdrawn, and will remain so unless community programs in the 1980's focus more emphatically on "quality of life" issues that extend beyond mere place of residence or administrative mode of service delivery.

One of the major areas of unmet needs which relates most directly to "quality of life" concerns is that of identification and successful community programming for mental health difficulties of the mentally retarded.

It is important to recognize that the mentally retarded person is being moved from an institutional environment which typically has encouraged and, in many obvious and numerous more subtle ways, has required such personal characteristics as passivity, dependency, compliance, and generalized helplessness. As a result, the institutional experiences provided have inadvertently fostered a generalized emotional/motivational tone of apathy and even mild depression in many. Movement from this environment to one that by design will require more independence, assertiveness, decision-making, and self-initiated expression of interest in and responsibility for numerous aspects of their lives does create obvious mental health problems.

Many other mentally retarded persons being moved into community settings have not acquired skills of impulse control, skills of dealing with interpersonal conflict, or skills of responding in an adaptive manner to the usual myriad sources of aggravation and stress inherent in a less restrictive community placement. It is not surprising that episodes of physical violence, property destruction, and self-abuse become frequent occurrences, with the not infrequent result of reinstitutionalization. In summary, many of the mentally retarded being placed in community living, vocational, educational, social adjustment, and other habilitation agency programs do not have the emotional and motivational features, the social competency, or the generalized coping skills required for personally satisfying and socially productive adaptations to these programs.

Size of the Problem

Numerous writers have highlighted mental health difficulties as a significant contributing influence in the general social, personal, educational and/or vocational failures of the mentally retarded. Data from a number of studies indicate that mental health difficulties account for the majority of adjustment failures in the community of those who have been released from an institution (e.g., Eyman & Call, 1977). Other studies highlight the role of mental health difficulties in placing the mentally retarded who reside in the community in jeopardy for health and/or safety, general welfare, and legal concerns (e.g., Nihira & Nihira, 1975). Studies of mentally retarded adults placed in competitive employment report that from 33 to 100% of those who fail demonstrate obvious mental health difficulties (e.g., Schalock & Harper, 1978).

Formal epidemiologic studies of the prevalence of mental health difficulties among the mentally retarded, while beset by major methodological problems, suggest a significantly increased rate of occurrence over that observed in the non-retarded population. Studies report that up to 50% or more of persons referred for institutional placement display clear indices of emotional disturbance. In light of the absence or inadequacy of institutional treatment programs for the mentally retarded with chronic mental health difficulties, it is safe to assume that many of these same individuals are among those being returned to the community by the deinstitutionalization movement. Other studies of mentally retarded individuals living in the community consistently have reported a 20 to 35% and higher frequency of obvious mental health problems (e.g., Menolascino, 1977; Szymanski & Tanguay, 1980). Such difficulties include (a) the severe disorders of personality disorganization seen in psychotic reactions, (b) those characterized mainly by excessive anxiety and related defensive reactions observed in neurotic syndromes, and (c) a range of disorders, as described earlier, of conduct, passivity, dependency, withdrawal, generalized helplessness and depressive-like reactions.

Unmet Needs

In view of the rate of occurrence, severity, and chronicity of these mental health problems, it is obvious that there is a major service need for community habilitation agency programs to provide for early identification and effective treatment of these. This especially seems vital in view of the relatively fragile level of personal/social competency of many, if not most, mentally retarded persons, even in the absence of the additional handicap of emotional/behavioral difficulties.

Meeting the mental health needs of the mentally retarded is a laudable "quality of life" goal for the 1980's, but in fact community service personnel as a group currently neither have the skills and commitment to effectively treat these mental health difficulties nor the service delivery system designed to provide the type and continuity of services required for effective treatment. Even community mental health agency programs do not effectively serve the mentally retarded. In a recent report of the President's Commission on Mental Health, the mentally retarded were identified as one of several groups unserved or underserved by community mental health services. Although there are a few exemplary mental health training and/or service programs in University Affiliated Facilities and other university and community agency settings, these have had relatively little impact on influencing adequate service-delivery in other communities across the country.

Ineffectiveness of Current Practices

It must be recognized that relatively minimal research and training efforts have been devoted to the development of effective treatment and the delivery of such services by community habilitation agency staff. Research and clinical experiences in the 50's, 60's, and 70's taught us to be quite effective in teaching toileting skills, grooming skills, dressing and eating skills, and in teaching work/vocational skills, even to the severely and profoundly retarded, while relatively minimal research and clinical efforts have been devoted to solution of mental health problems.

Review of current rehabilitation, psychological, educational, and psychiatric literature pertinent to (re)habilitation of the mentally retarded with mild to severe mental health difficulties emphasized the relative ineffectiveness of many current approaches to treatment. Mental health professionals, with little training or experience in working with the mentally retarded, attempt to treat them like any other client with mental health difficulties. The results typically are disappointing (e.g., Szymanski & Tanguay, 1980). Personal counseling, psychotherapy, and other psychodynamic approaches, as currently defined and practiced, do not appear to be generally feasible, efficient, or effective with the mentally retarded (e.g., Rosen, Clark, & Kivitz, 1977; Sternlicht, 1977). Even when these treatment services are available, few mentally retarded clients will utilize such successfully. Many simply will not independently and willingly seek or cooperate with treatment, as many do not have the insight, motivation, or resources to remain involved in such clinic visits. This lack of participation in the typical community mental health treatment program is also observed in the deinstitutionalized non-retarded client. Studies indicate that one- to two-thirds of clients referred to community facilities do not show up and that 40 to 50% that show up do not come back after one session (Anthony, 1980).

Psychotropic drug therapy, while a potentially valuable adjunct in selected instances to a more comprehensive treatment effort designed to promote appropriate emotional control and expression and interpersonal skill development, does not provide the community habilitation agency staff with a viable treatment option when used as the major or only treatment approach. But in all too many instances the only specialized treatment provided the mentally retarded with severe mental health problems is that of drug treatment. Further, it is not unusual that such treatment is provided with minimal or no consultation or communication with other habilitation program efforts (e.g., Rivinus, 1980; Sprague & Baxley, 1978).

The reader may point to the rather prolific behavioral literature and suggest that in fact considerable research has been done, and that effectrive behavioral intervention procedures are available. On the contrary, well-defined behavior therapy approaches are not available for more generalized personality problems, problems of emotional expression, problems of impulse/conduct control, problems reflecting generalized motivational inadequacy, and the like (Gardner & Cole, in press). Additionally, many of the behavioral treatment procedures, while being effective for accomplishing specific objectives, may not be acceptable or feasible for use in community settings. A recent review of the literature describing behavioral treatment of aggression and related conduct difficulties in the mentally retarded (a mental health problem identified by numerous writers as either being involved in reinstitutionalization of community placed retarded adults or as the major barrier to initial placement in the community) revealed that the vast majority involved the use of various punishment procedures, many of which would not be acceptable or feasible for use in community agency settings (Gardner & Cole, 1983). Obviously there is need for continued research and clinical efforts in evaluating less intrusive treatment approaches directed at facilitating competence rather than at eliminating bothersome symptoms.

Current service-delivery systems are no more successful. The community mental health program typically does not serve the needs of the mentally retarded with a range of mental health difficulties. The mental health professional all too frequently has taken the position that the mentally retarded should be served by staffs of retardation facilities or agencies. As a result, many community mental health clinics categorically exclude the mentally retarded from their services. This reflects both a lack of training among mental health professionals in serving the mentally retarded as well as bias and misconceptions about the merits of investing valuable professional resources in serving this group of citizens (e.g., Szymanski & Tanguay, 1980).

At the same time, the developmental disabilities service network all too frequently has assumed the position that community mental retardation programs are not designed for or do not have trained personnel to meet the treatment needs of those who present severe and chronic mental health difficulties. In fact, in too many instances, programs and staff appear relatively unaware of or unconcerned about the mental health difficulties of the retarded clients. Major attention is directed to training production rate, use of public transportation, and other ADL skills, but little programmatic effort is invested in teaching emotional expression and control, interpersonal skills, and skills of self-management.

As a result of this hiatus, the mentally retarded client is either ping-ponged from one agency to another or else is relegated to the status of receiving minimal or no effective programming.

In summary, major factors contributing to the inadequacy of community mental health services for the mentally retarded citizen include (a) the lack of general knowledge among both mental health and developmental disabilities professionals about effective intervention procedures, (b) the limited interest among professionally trained mental health personnel in serving the mentally retarded, (c) the critical shortage of adequately trained and committed mental health, developmental disabilities, and other habilitation agency personnel, and (d) the lack of resources and service-delivery systems designed to provide the intensive and coordinated services needed for effective treatment.

Some Suggested Actions

Recognizing and meeting the mental health needs of the mentally retarded is a most challenging problem. As suggested, it is a "quality of life" issue that must be addressed if the deinstitutionalized as well as other retarded citizens are to attain a personally satisfying and socially productive life. In our opinion, each community or region providing services in geographically designated areas should develop a workable plan for identifying and meeting the mental health needs of the mentally retarded. Following are suggested actions and related concepts for addressing this community service need.

1. The plan should reflect the policy position that the mental health needs of the mentally retarded cannot be met satisfactorily by any single agency. While mental health and specialized developmental disabilities agencies should share a major commitment in assuming responsibility for

aspects of the plan, the plan should reflect a network of services provided by a range of community agencies.

2. The plan should address specifically (a) the inadequacy of current service-delivery systems, (b) the shortage of trained personnel, and (c) the limitations of such psychiatric and psychological treatment approaches as psychotherapy and drug treatment, as well as various behavioral approaches which focus on elimination or control of symptoms. Alternative approaches designed to insure maximum integration of treatment efforts should be explored to insure more relevant and effective services.

3. The plan should reflect an intervention model that is predominately habilitative and educative in nature. In most instances, the mental health difficulties of the mentally retarded can best be met by programs designed to teach the client new competency skills. The more traditional disease model, while appropriate in dealing with aspects of behavioral/emotional difficulties related to organic factors, simply is not an effective model for treatment of the majority of mental health problems presented by the retarded citizen.

4. The plan should reflect a locus of intervention that predominately makes use of individuals in the natural environments of the clients. Staff in the clients' living, vocational training, educational, and recreational programs should be used as habilitative agents throughout their natural and usual contact with the client. Professionals in any agency providing services to the mentally retarded and family should have basic clinical responsibility for identifying and providing effective treatment for mental health difficulties in the setting in which these occur. Minor problems should not go unattended in non-mental health agencies until these develop into major difficulties. Educators, social workers, and rehabilitation personnel, for

example, who provide services to the mentally retarded should be skillful in dealing with problems at the time these occur in community agencies and in places of residence. Consultation with mental health specialists and/or referral to mental health agencies can then be reserved for those more difficult and chronic problems which do not respond sufficiently to services provided by generic staff within the more natural program settings of homes, school, recreation, vocational, and related agencies. Even on referral, there must be interagency planning and coordination of services provided. This is of special importance when providing treatment in environments and by people who are not typically present in the person's natural or usual environments. The mentally retarded, especially the more severely impaired, will have considerable difficulty in generalizing and maintaining treatment effects gained in one setting to other situations and persons.

5. The plan should reflect the central importance of staff training. There appears to be a need for all staff, from the psychiatrist, psychologist, social worker, educator, and vocational counselor to the house parents and family members, to become more knowledgeable about and skillful in meeting the mental health needs of the retarded.

6. The plan should reflect a prevention attitude. All community programs must recognize that the mental health difficulties of the mentally retarded basically reflect the same set of influences involved in the mental health difficulties of the non-retarded. Many of the problems can be prevented or reduced by sensitive attention to the emotional and interpersonal needs of the retarded as these become evident in daily living experiences.

7. The plan should reflect a research attitude. As noted earlier, there is a need for research in each of the program areas suggested above. There

currently are no tested solutions to many of the mental health problems of the retarded. A commitment by each community plan to support research activities will contribute to the needed development of new knowledge.

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DEINSTITUTIONALIZATION IN THE 80'S--WHEN THE BUCKS ARE THIN, COOPERATION IS IN

Orv C. Karan

Although heated arguments addressing the benefits of community versus institutional life still abound, service delivery to severely handicapped persons is predominantly guided by philosophies and values rather than empirical data (Zigler, 1978). Further, persons now living in community settings are more able and higher functioning than those still residing in institutions (Menninger, 1980), and the mere placement in a community setting does not ensure that the individual is participating in his/her new living arrangement in a personally satisfying and socially productive manner (Gardner & Cole, 1983).

Without question, proponents for the principles of normalization have helped to raise society's consciousness with respect to the rights of handicapped persons. Yet at the same time, they have also contributed to a good vs. bad dichotomy that now exists in our field between those who maintain that all handicapped persons should live in the community and those who believe the insitution has a role in the total service delivery system.

Admittedly, the dichotomy is an oversimplification of a distinction which some have suggested is a false one anyway (Throne, 1979). But, if there is one thing current events have clearly shown it is that no matter how much we argue among ourselves for or against a particular position, one stroke of a pen from our elected leaders can have substantially more of an impact on the ultimate fate of handicapped persons. Unfortunately, logic, common sense, philosophic ideals and principles, and yes, even data, usually have only a relatively minor impact on the decision-makers who ultimately allocate the funds. And, from all appearances, the funds for accomplishing the worthy goals of deinstitutionalization and normalization will simply continue being inadequate.

Although there is, and shall always be, a need for debate and controversy, now is the time for cooperation in the achievement of mutual goals. For at least the immediate future, institutions, big and small, will continue to exist while community programs will continue being unable to meet the multiplicity of needs of all handicapped persons.

Maximizing each individual's competencies to the highest levels within the least restrictive environment(s) that will maintain such levels is a legitimate goal to which our field can and should dedicate itself. From this perspective, a flexible continuum of services, including both the institution and the community is needed. Clearly, however, within such a continuum there is considerable room for improvement over what now exists.

Programming for Deinstitutionalization

Generally speaking, habilitation staff in institutional programs do not know a great deal about the content, method, or process of what goes on in community programs and vice versa. Instead, these programs usually operate totally independently of each other. This represents a serious conceptual flaw in deinstitutionalization planning and raises a very basic, but important question, namely, how can institutional settings adequately prepare their residents for living and working in community settings without specifically knowing which skills are required for gaining entry into such settings? One effect of this is that institutional program staff may underestimate the importance of those skills which community program staff consider basic, but overestimate the value of those skills that may have only minimal relevance to community programs.

Although it may be argued that many skills are important and desirable, the purpose of training in an institution, if it is to be an integral part of a continuum, should be to develop, in its residents, the essential competencies they need for entering community settings. Further, such training should only continue for as long as it takes to develop these critical skills at which point the community resources should be activated. What is of concern is not "how," but rather, "what" to teach (Hobbs, 1975). Unfortunately neither the intuitive impressions of staff, commercially available curricula, nor even published literature usually provides information that is so directly specific to the actual community programs that exist within the immediate geographical area of a particular institution. But, it is just such area-specific information that can provide the most desirable content for training.

Yet, instead of this type of functional content, it is not unusual to find material of questionable validity sequenced in a developmental fashion as part of an institution's total habilitation program. One of the problems that may result when a developmental model based on non-functional content is applied to adults is that some persons will spend months, years, even lifetimes trying to learn prerequisite skills and never advance. Maybe it's time to stop using approaches that all too often result in locking people into perpetual prerequisite training which is not directly related to the actual work and living settings available in their community. Instead the emphasis should be on identifying and working on those critical skills that community program staff consider mandatory for entry into their programs. Once this information is available, institutional program staff can begin complementing the effective teaching technologies which are available with a greater understanding of the natural community settings in their area, what these require for entry, and how these different settings interact with each other and with the people who live, work, and play within them (Karan, 1982).

Certainly, the natural cues and context provided by an actual community work or living setting provide a total experience which simply cannot be replicated in a simulated institutional setting. Yet, many of the judgments about how people will cope with less restrictive settings and conditions are often based upon impressions made of them in more restrictrive settings. For example, predictions about how an individual will adjust in the community are often based upon that individual's behavior in the institution. Is it not possible that judgments about the person's ability to adjust to community life might be better made in the community rather than in the institution?

A Transition Model

In responding to this question, the Research and Training Center in Mental Retardation at the University of Wisconsin-Madison began a three-year longitudinal study of a deinstitutional model which: (1) provides a gradual transition of people from the institution into the community; (2) requires cooperative efforts between the institution and the community; and, most importantly, (3) creates an opportunity for evaluating an individual's community potential based upon his/her actual involvement in community environments.

This study, entitled Project Deinstitutionalization, has two general purposes. The first purpose has been to investigate a deinstitutionalization model which incorporates a community-based work activities center as a transitional setting where severely/profoundly handicapped institutionalized persons acquire community experiences while still residing in a large institution. Once the participants adjusted to the community work environment, they then moved into a community group home. This first purpose represents a seemingly small, yet significant, departure from current deinstitutionalization practices in which an individual's shift from the institution to the community is often abrupt. Such shifts usually include both the working and living components simultaneously rather than incrementally as proposed by this model. Since individuals now in institutional settings are more substantially handicapped than those who preceded them, the potential for their adjustment difficulties, and ultimately their failure in community placements is increased (Eyman & Call, 1977; Eyman & Borthwick, 1980; Intagliata & Willer, 1980). Thus, part of the rationale of the model was to anticipate "transition shock" (Coffman & Harris, 1980) and minimize it through a gradual adjustment process.

The second general purpose has been to study the behavioral changes in the participants occurring over time as a function of their community activities. At present, little systematic data are available on the environmental determinations of adjustment upon mentally retarded persons in community settings (Crawford, Aiello, & Thompson, 1979). The collection of the data for meeting the objectives of this project provide an initial attempt to establish a data base on the actual adjustment process of deinstitutionalization as it is occurring.

In its initial phase, during which the participants continued to reside in the institution but went to work daily in the community, project objectives concentrated on: (1) the adjustment of the participants to a full work day, five-day per week schedule at a community-based work activities center; (2) the clinical changes which occurred back at the institution as a function of the person's community involvement; (3) the changes, if any, in a matched control-group which received all its services in the institution; and (4) the impact of the project on the attitudes of the community staff where the project was occurring.

The findings from this part of the investigation can be briefly summarized as follows. The project participants demonstrated clear clinical and empirical evidence that they had adjusted to the requirements of the community work setting. That they made such an adjustment, however, had no bearing on their behavior(s) back at the institution which remained essentially unchanged throughout the entire course of this phase of the project, and did not significantly differ from those of a control group of peers who did not attend the community work program. Finally, there were some shifts in community staff attitudes over the duration of the first phase of the project, with the nature of these shifts moving from a very positive to a less positive direction. This was interpreted to be an indication of the discrepancy between the staff's uncritical acceptance of the principles of deinstitutionalization and normalization, and the practical realities involved in attempting to achieve what the implementation of these principles actually require.

Generally speaking, the findings suggested that institutionalized persons may be capable of doing much better than would normally be expected based on their performance in the institution. Also suggested was that community resources must be called upon to take an active role in facilitating the deinstitutionalization process since individuals can only learn about the community by actually participating in community experiences.

With the stabilization of their behavior(s) at the work activities center, it became appropriate to begin the next phase of the study which has recently been completed (although the data have not yet been completely analyzed). During this phase, the participants moved into a community group home and the project objectives sought to determine: (1) whether there were any behavioral adjustments at the work activities center as a function of a change in living arrangements; (2) if the participants showed any improvement in their behavior(s) at the group home in comparison to what they were showing while living at the institution; (3) if the participants showed any difference in their behavior(s) in comparison to the control group; (4) if there were differences in the adequacy of nutrition as a function of living in the community; and finally, (5) if the participants chances for receiving services from the State-Federal Division of Vocational Rehabilitation (DVR) increased as a function of the project.

Although the findings are still under study the model's emphasis on reducing the stress of the transition period from the institution to the community represents an area of inquiry and concern that is in need of more research.

Obstacles in the Community

Even in those cases where the transition can be accomplished, there still exist many obstacles within the community services network which must be alleviated, since it is generally acknowledged that recently deinstitutionalized persons need more intensive assistance than their earlier counterparts (Intagliata, Kraus, & Willer, 1980). This means that community service providers can expect to be faced with a multiplicity of problems for which they may be inadequately prepared.

It has been found, for instance, that among those mentally retarded adults who fail to adjust to community environments, there is a high prevalence of associated mental health difficulties (Schalock & Harper, 1978). Yet, as several authors have noted (Gardner & Cole, 1983; Menninger, 1980), community service personnel as a group currently neither have the skills and commitment to effectively treat these difficulties nor the service delivery system designed to provide the type and continuity of services required for effective treatment. Gardner and Cole (in press) concluded after an exhaustive review of the literature that treatment approaches for mentally retarded persons are simply not available for their more generalized personality problems, problems of emotional expression, problems of impulse/conduct control, problems reflecting generalized motivational inadequacy, and the like.

Further, of those treatment approaches which have been reported for dealing with some of the more extreme behavior disorders (that are now starting to be seen in community settings), most have been validated in institutional settings where the treatment agents could exercise levels of control which are simply impossible within community settings. Many of the reported procedures (e.g., overcorrection, time out, etc.) have not been modified for adults in the community. Trying to replicate such procedures in community settings, where individuals are expected to participate in many outside activities and interact with a variety of individuals has often proven to be difficult if not impossible. Add to this the lack of coordination found among the myriad of agencies serving severely handicapped persons; the differing philosophies and attitudes of the people with whom a particular resident interacts; and the necessity of not letting the needs of one individual violate the rights of others in his/her environment, and it becomes easy to see why a transfer from the community back to the institution sometimes becomes the only apparent option.

A related issue is that since many community living settings occur in residential neighborhoods, the staff may be isolated from support networks which can assist in reducing their stress and/or lightening the workload associated with supervising the daily living needs of severely handicapped persons, particularly those with associated mental health difficulties. Staff expectations for their own growth and development as well as for the residents with whom they live may remain unfulfilled. As such, relatively high staff turnover rates will undoubtedly continue (George & Baumeister, 1981) which will only further complicate the adjustment problems of recently deinstitutionalized adults whose range of stable meaningful human relationships is relatively limited anyway. Clearly, in no way can it be assumed that community services systems at present are ready to adequately accommodate the diverse and complex needs of all handicapped persons.

Summary and Conclusions

Although we can and should be guided by the principles of normalization, it seems clear that at least for the immediate future, institutions will remain open while the promise of community services will remain largely unfulfilled. In the long run, this will hopefully change so that the community services can appropriately respond to the needs of all severely handicapped persons. At this point in time, however, there is a need to have a continuum of services in which institutional and cmmunity programs support and complement each other. As was noted in this paper, institutional program staff should focus on developing realistic and functional curricula using as their guide skills identified as relevant by the community program staffs in their area.

There is also a need to create methods for reducing the potential transitional shock created by relocating individuals from institutional to community environments. Since those still in institutions are more severely handicapped, it is to be expected that their adjustment difficulties will be greater. Therefore, more attention needs to be given to methods by which smooth transitions can occur. This paper discussed one such model in which the movement from an institution to the community occurred in a gradual, incremental fashion rather than abruptly.

Finally, much consideration needs to be given to developing ways by which community agencies can successfully respond to the complex needs of recently deinstitutionalized persons. Certainly one good place to start would be in the refinement and modification of treatment approaches for behaviorally disordered adults in the community and in the development of effective training and support systems for programs and for the staff who work within them.

Although it is true that the problems are immense and the funds scarce and becoming scarcer, there is considerable talent and energy among those who work in institutional settings (including universities) and those who work in community settings which can and should now be unified toward common purposes and creative solutions. We can always argue tomorrow.

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HABILITATION PROGRAMMING FOR BEHAVIORALLY DISORDERED MENTALLY RETARDED ADULTS: JUST BECAUSE IT FEELS RIGHT DOES NOT MEAN IT IS

Orv C. Karan

Until quite recently, individuals who were not just mentally retarded but who also had substantial behavior disorders of an aggressive nature were not that visible in the community. This was not because they did not exist but rather because they were excluded from most community services. Now, partly because of the current emphases on deinstitutionalization and normalization, persons who are dually handicapped are entitled to treatment in the least restrictive settings, which many interpret to be the community. This, however, in no way necessarily implies that the community is ready to serve them.

As a society, in our quest to correct social injustices through deinstitutionalization we have been guided by rather gross assumptions, not the least of which has been that the community is necessarily better than the institution. But, it must be remembered that these assumptions are not based on empirical data but rather on philosophical, legal, moralistic, and ethical grounds (Zigler, 1978). And, in our rush to depopulate institutional settings, we have not adequately prepared the community for dealing with individuals who in many respects are different, and more difficult to habilitate, than their non-behaviorally disordered peers.

An Etiological Perspective

Unlike other mentally retarded persons whose primary handicaps are in the areas of skill acquisition and retention, these persons often have a history of complicated emotional/behavioral problems which have significantly interfered with their learning opportunities. As youngsters, many of their life experiences were frequently gained in an institution or at home, usually with major sacrifices made by other family members. If they did receive training, considerable time was often devoted to the management of their behavioral problems to such an extent that there was little time for teaching or learning new skills. Then as these children grew so did the gaps between what they should and could do versus what they did do. But, unlike children whose aggressive behavior can usually be contained fairly easily, and at times may even be considered cute, there is nothing cute about an adult's overt aggression. Attempting to minimize adult aggression is a serious matter with sometimes unfortunate outcomes in the form of injury to the person and/or those around him or her.

The Strain on Staff

Most of us would probably not choose to participate in daily activities which place us and those with whom we work in potential danger. To be exposed to this kind of strain on a daily basis as part of a job is almost guaranteed to result in staff burnout and high turnover. For that matter, it is probably not possible to be in the immediate presence of someone who is aggressive toward us or others without having some kind of rather powerful emotional reaction. We are all aware of our own personal physiological responses which occur when we are placed in a potentially dangerous situation. These responses may be associated with a whole host of emotional reactions ranging from fear and intimidation to outrage and a desire to retaliate or punish. Further, just because an aggressive episode is over does not necessarily mean that our emotional reactions to either the episode or to the person have changed in a more positive direction. It is very difficult, for example, to act kindly toward someone who only minutes, hours, or even days ago physically aggressed against you or someone you cared about.

Developing Treatment Programs

Yet to develop treatment programs using our gut as our guide may only intensify the person's problematic behavior, put us into no-win power struggles, and eventually result in the person's removal from the setting. We must continually remind ourselves that just because a particular plan of action may feel right does not mean it is appropriate or in the person's best interests. Often, appropriate treatment programs have just the opposite impact namely, they are effective but they just do not feel right to those either designing or implementing them.

Ours is a unique field and because it is we must continually recognize that our value systems do create inherit biases which may interfere with effective habilitation. We must, however, not become so blinded by our own biases that we react *emotionally* rather than acting *therapeutically* when selecting particular treatment approaches. This issue is central to attempting to work through some of the incredibly complex problems presented by behaviorally disordered mentally retarded persons who are now or who will be participating in community experiences.

There is no questions that those responsible for developing habilitation programs are constantly balancing their personal philosophies with contemporary technologies. With regard to technology one additional complication, which is not often given the consideration it deserves, is that individuals who are dually handicapped require and deserve to be treated by skilled personnel who have knowledge and experience with both mental health and special education principles and practices. An emphasis in the concepts of one without the other may inadvertently create situations in which successful community integration actually becomes the exception rather than the rule.

A situation common to those who work with behaviorally disordered adults is that in which one or more staff express their frustration with a particular individual with comments such as "he knows damn well what he's doing" or "he's doing that just to spite me" or other similar statements all of which imply that the person either manipulated the situation or was in enough control that s/he chose to act in an unacceptable manner. From this perspective the most logical form of treatment selected is often one in which the person's behavior is consequated negatively in some way. By taking such an approach there is an underlying assumption that the appropriate behaviors are in the person's repertoire and that the person is actively choosing to engage in the inappropriate behavior. That this assumption is true, however, is often made on the basis of the staff member's perceptions and inferences rather than on the basis of any solid objective support.

If an individual could not dress himself/herself or was having difficulty completing a particular task in a work setting, the consequation of that performance would not usually be selected as a first step in teaching the appropriate skills. Rather, depending on the degree of the deficits one would more likely use some form of shaping where basic prerequisite skills would be taught by guiding, demonstrating, and/or telling the individual how to complete the variety of substeps required for performing the required task. But, then, learning deficits rarely generate the kinds of emotional reactions from staff that are generated by those displaying aggressive behaviors. When the staff's emotionality is reduced the choice of treatment can be made with greater objectivity. Further, when the individual's problem is clearly due to a learning deficit there is less likelihood that staff will make the assumption that the person knows how to behave but simply chooses not to do so. Somehow, as soon as the person's problems generate negative emotionality in those around him/her, there is a tendency to expect more from that individual than would be expected from other individuals who have other less intense learning problems. Its almost as if social skills are viewed differently than other skills.

If, however, social behavior is viewed as being as susceptible to learning conditions as are any other skills those who are aggressive may be viewed as people who have not acquired a sufficient number of appropriate social skills. The treatment perspective therefore becomes not just one of reducing the negative behavior but also of teaching new social skills as well. And, once an individual's behavior is viewed from a skill deficit perspective rather than as manipulatory or premediated this almost by necessity generates a treatment approach which, by its very nature, includes a teaching component. Such an approach, however, may often run contrary to the personal values of the staff and therefore feel quite uncomfortable to them when it is implemented. Ultimately what it requires are staff who are capable of acting therapeutically and creating an environment in which appropriate learning can occur rather than reacting emotionally and consequating behaviors with various forms of punishment.

Habilitation programs based upon consequences for acceptable and unacceptable behaviors can create significant shifts in the typical structure and events in the individual's life. These new and different situations may have less than the desired outcomes. For example, if the program plan recommends that the individual be rewarded for appropriate social behavior and punished for aggressive behavior, and if that individual did not have appropriate social behaviors of sufficient strength to occur spontaneously, it is possible to have extended negative consequation which only serves to complicate the problem to a greater extent. Under such conditions more extreme measures such as medications, more punishment, or, as is ultimately the case for far too many, the removal of the person from the setting into a more restrictive one are frequent outcomes.

Another consideration relates to the fact that as individuals participate in the community their exposure to unplanned consequences increases dramatically. Even the best run, most theoretically sound, behavior management approach can be undermined instantly when an individual leaves the program setting and interacts with a person on the street; a peer; or for that matter even another staff member who may not know about the program. Although tightly run well controlled programs may be possible in institutional settings they become extremely difficult, if not even impossible, in most community settings.

This in no way implies that protective measures should not be taken if an when aggression occurs. But, it must also be understood that what is sometimes developed under the guise of individualized treatment may be either for the convenience of the staff or because, emotionally, it fits their value sytems.

Creating an environment within which appropriate learning can occur depends both on a technology for maximizing learning conditions and a supportive philosophical orientation in which the responsibility for learning new behaviors and minimizing inappropriate ones, even those of an aggressive nature, is shared by both the person and the significant others in his or her environment. If this responsibility is not shared, but rather the individual with serious conduct disorders is held solely responsible for his/her behavior, then the prognosis for that individual remaining in that community setting is poor.

Admittedly, the issues in selecting appropriate treatment for developmentally handicapped adults who are aggressive are extremely complex, and far beyond the scope of this article. Frequently, for example, a major issue is not just the individual's right to treatment, but also how these rights infringe upon the rights of others within the same setting. Is it fair, for example, for an individual who has a history of aggression to be placed in situations where his/her behavior can terrorize, victimize, or otherwise make uncomfortable other individuals who just happen to be either working or living in the same setting? There is, of course, no easy answer to this particular question and, just as the individual who is displaying behavior problems is entitled to an environment which is sensitive to his or her needs and capable of responding in a therapeutic fashion so are the other individuals in that setting entitled to an environment which supports their growth and comfort. The resolution of this serious issue may require new forms of service delivery which would include alternatives to present living and working settings. There may also be the need for specialized settings which are capable of dealing with individuals during those times they are experiencing their most fragile behaviors. But, at the same time, it should not be overlooked that inappropriately designed habilitation programs may often serve as catalysts for intensifying conditions to such an extreme degree that aggressive behavior is a highly likely outcome.

Conclusion

A reinforcer is defined only by its effect on behavior. From this perspective, any event which increases the likelihood of a behavior is a reinforcer. One glaring implication is that when programs are designed for individuals who are aggressive, and their aggression continues or intensifies, components of the program may actually be reinforcing the very behaviors these were intended to reduce. Developing programs for treating serious behavior problems, where the basis of the program is staff values rather than behavioral function is an insufficient justification for program development. The stakes are too high to continue this all too frequent practice with respect to the treatment of behaviorally disordered mentally retarded adults.

Aggressive behavior, perhaps more than with any other form of interaction, requires the selection of carefully designed and well documented treatment programs. And, to the extent it is possible, we should attempt to reduce or at least be more aware of the incredibly powerful role that our own values and biases have with respect to such program development.

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A STRUCTURED LEARNING HABILITATION APPROACH: USE WITH THE MENTALLY RETARDED PRESENTING EMOTIONAL AND BEHAVIORAL DISORDERS

William I. Gardner and Christine L. Cole

Beier (1964), Bialer and Sternlicht (1977), Menolascino (1970, 1977), and Szymanski and Tanguay (1980) have all emphasized the increased susceptibility of the mentally retarded to development of emotional and behavioral abnormalities, that is, to demonstrate mental health difficulties. Formal epidemiologic studies of the prevalence of mental health difficulties among the mentally retarded, while characterized by methodological problems, suggest that various emotional and behavioral disturbances or disorders are indeed quite prevalent--seemingly at a rate which exceeds that found in the general populations (e.g., Chess, 1977; Phillips & Williams, 1975; Rutter, 1971; Tarjan, 1977). Various studies report that up to 50% or more of persons referred for institutional placement display clear indices of emotional and/or behavioral disorders (see Menolascino, 1977). Further, a significant percentage of those in residential facilities serving the mentally retarded have the additional handicap of emotional disorders (Sheerenberger, 1978).

A recent national survey of community residential facilities for the mentally retarded reported mental health difficulties to be the single most frequently identified condition among those residents with additional handicapping conditions (Bruininks, Hauber, & Kudla, 1979). Other studies of mentally retarded individuals living in the community consistently have reported a 20 to 35% and higher frequency of mental health problems (e.g., Menolascino, 1977; Szymanski & Tanguay, 1980). Such difficulties included (a) the severe psychotic disorders of personality disorganization, (b) those characterized mainly by excessive anxiety and related defensive reactions observed in neurotic syndromes, and (c) a range of disorders of conduct, passivity, impulse-control, dependency, withdrawal, generalized helplessness, and depressive-like reactions. In summary, although available data should be viewed with caution relative to precise prevalence of various specific types of psychological difficulties, most authors cited do agree that there is a generally high prevalence of emotional and behavioral difficulties in the mentally retarded population.

Risk Factors Contributing to Psychological Problems

A number of physical and psychological features of the mentally retarded and their more typical life experiences render them "at risk" for development and continuation of various emotional and behavior difficulties. These factors include:

1. *Central nervous system damage and maldevelopment contribute to the likelihood of impulsive behaving under conditions of external provocation.* The damaged person apparently has more difficulty in developing internal inhibitory features. Additionally, self-control or inhibitions which may be present are more likely to be lost in a neurologically impaired person when confronted with stressful/frustrating conditions, a disinhibition deficiency.

2. *The presence of other physical abnormalities frequently associated with mental retardation (e.g., epilepsy, sensory disorders, orthopedic difficulties, cerebral palsy, and other muscular and neuromuscular difficulties) serves to increase the general inadequacy of the individual.* This in turn increases the frequency of negative emotional experiences and resulting emotional difficulties. In addition, the presence of chronic

internal stimulation (e.g., pain, chronic fatigue) associated directly with the physical abnormalities and the drug effects that frequently are provided to manage the neurological, muscular, and behavioral abnormalities increases the likelihood that the mentally retarded person will be unable to cope with external sources of stress. Impulsive responding of a disruptive manner is likely. Thus, the person is more susceptable to the learning of disruptive and aggressive behaviors as an instrumental act.

3. The absence or limitations in the number and strength of prosocial skills increase the likelihood of inappropriate behavior under provoking or stressful conditions. For example, when confronted with peer conflict, the person may behave aggressively, or may withdraw, or have a temper outburst as s/he does not have alternative skills to behave in a more acceptable assertive coping manner.

4. The excessive nature of transitory negative emotional arousal in terms of frequency, duration, and intensity as well as the presence of more generalized negative emotional mood states increase the likelihood of disruptive outbursts and other maladaptive reactions when confronted with provocation.

5. The limited range of events that serve to produce positive emotional arousal, and the general reduction in availability of positive consequences, render the person more prone to maladaptive behaviors. Additionally, a history of frequent failure produces a reduction in the person's repertoire of positive emotional features. Thus, when confronted with events that provoke negative emotional arousal, the person has few positive emotional features which may serve to counteract the negative emotionality and its disruptive effects.

6 Due to general social competency difficulties, the mentally retarded experience more frustrations associated with lack of goal attainment, thwarting of goal-directed behavior, and conflict. As a result, the retarded person is more likely to be in a heightened state of readiness for maladaptive behaviors.

7. Limitations in cognitive skills decrease the likelihood that the mentally retarded can deal with sources of provocation or stress in a prosocial adaptive manner. This is reflected in the general absence of self-management skills. The person is less likely to use thinking and related mediational skills in evaluating a problem situation and in self-influencing his/her own alternative adaptive behaviors. For example, there are few self-generated statements of caution or redirection which may serve to inhibit various inappropriate behaviors or feelings, or self-generated cues for positive emotional reactions and prosocial interpersonal behaviors. Rather, the person is more "under the influence" of whatever stimulation is present, and tends to respond impulsively or nonreflectively. The mentally retarded are prone to be reactive to external influences, and are less likely to be reflective and self-directing.

8. There is a limitation in the number of instructive cues provided by social agents that are effective in influencing (i.e., inhibiting) inappropriate behaviors. For example, such controlling cues as "John, remember don't hit," or "Stop that," are less likely to serve an effective inhibiting function.

Etiologic Considerations

An examination of these and related risk factors emphasize that emotional and behavioral difficulties are not an inherent or direct manifestation of mental retardation. Rather, many such difficulties are produced by the life experiences provided the mentally retarded person as he or she grows throughout childhood into adolescence and adulthood. Such a position emphasizes the critical role that families and educational, rehabilitation, and social agencies assume in either preventing, or in producing, various psychological problems.

Prevention, early identification, and effective treatment of these problems become quite important to the mentally retarded because the presence of even minor difficulties may add significantly to the personal and social incompetency of the person who, with his or her intellectual limitations, already is burdened with a major handicapping condition.

Ineffectiveness of Current Practices

Review of current rehabilitation, psychological, educational, and psychiatric literature pertinent to treatment of the mentally retarded with mild to severe mental health difficulties, emphasizes the relative ineffectiveness of most current approaches. Factors contributing to this included (a) the lack of general knowledge among mental health, special education, social agency, and rehabilitation professionals about effective intervention procedures, (b) the limited interest among professionally trained mental health personnel in serving the mentally retarded, (c) the critical shortage of adequately trained and personally/professionally committed mental health, special education, social agency, and rehabilitation personnel, and (d) of special pertinence to the remaining remarks, the lack of widespread acceptance of a treatment model that is habilitative and educative in nature.

In elaboration of this latter statement, in most instances, the mental health difficulties of the mentally retarded in our view can best be treated by program experiences designed specifically to teach the student or client new competency skills. The more traditional disease model, which assumes pathology within the person as the critical factor producing the emotional and behavioral difficulties and which attempts to change this internal psychological pathology through individual or small group psychotherapy, simply is not an effective model for conceptualizing and treating the majority of mental health problems presented by mentally retarded persons. A more direct educative approach, that views problems as the result of faulty experiences as the person interacts with his/her numerous social environments and that seeks to change these experiences, is offered as an alternative to traditional psychotherapy practices. The educative approach uses various individuals in the natural environments of the person with emotional difficulties--parents, other family members, teachers, work training program staff, staff of residential facilities, and the like--as the therapeutic agents.

Following a description of some of the major personal characteristics of those mentally retarded persons who present persistent emotional and behavioral disturbances, central features of an educative treatment model are presented. We have termed this a Structured Learning Habilitation Approach. Finally, brief illustrations of the application of the approach to educational, residential, and rehabilitation settings are presented.

Personal Characteristics of the Mentally Retarded

Of the personal characteristics of the mentally retarded with emotional and behavioral difficulties, the following are emphasized in our educative intervention model.

Excessive External Influence

The person is excessively under the influence of external stimulation provided by the physical and social environments. S/he may be described as being "dependent," "outerdirected" or as exhibiting an "external locus of control." Events outside of the person have major influences over what s/he does. The person tends to be reactive instead of behaving in a more reflective, thoughtful, self-directing manner. Many of the basic skills of self-management or self-direction are lacking or only partially developed. The person tends to view others as being in charge, and as him/herself as having little personal responsibility for what s/he does. There may develop a generalized "learned helplessness." The person has learned through personal experiences that regardless of what s/he does, s/he has little influence over the outcome.

Negative Self-Concept

Closely related is the observation that the mentally retarded person's self-concept attributes are poorly developed and predominately of a negative nature. The person frequently has strong patterns of thinking negatively about himself/herself and his/her competencies. The person is likely to make such statements as "I don't like myself," "I'm not very smart," "I'm dumb." Such labels as "slow," "ugly," "bad," "stupid," "poor," "crippled," "damaged," and "weak" become part of the person's self-referents. Such self-referents become cues for negative emotional reactions. The person may be decribed as exhibiting excessive feelings of inadequacy, of inferiority, and as reflecting negative self-concept behaviors. These personal features create difficulty for the mentally retarded as these serve as the impetus for avoidance of various interpersonal/social situations which potentially could contribute to the development of more positive features.

Additionally, in our experience with the mentally retarded with chronic emotional and behavioral difficulties, the person typically has poorly differentiated social roles. The mentally retarded person does not demonstrate an awareness of what is expected in various situations (e.g., in the classroom, on the playground, in a vocational work setting, as a member of a peer group), or else does not value or have the social motivational system to engage in these role behaviors expected in various settings.

Difficulties in Emotional Expression

The person's emotional features differ in several significant aspects:

1. There is less emotional differentiation. The predominant emotional tone is that of negative arousal. Numerous aspects of the person's external and internal environments serve to provoke and maintain a variety of negative emotions. In illustration, the person in the educational or vocational setting is more likely to be in a bad mood, object to attempts at social interactions, and experience heightened generalized emotional states such as anxiety or fearfulness.

2. The person is prone to engage in intense and disorganizing episodes of negative emotionality. Such heightened arousal frequently results in aggressive outbursts. The person may strike out in a random and disorganized fashion and attack whomever or whatever may be present at the moment.

3. It is not unusual to observe that minor sources of irritation or frustration may produce unusually strong emotional reactions. When confronted with stress, the person may engage in a temper outburst, may become excessively negativistic, or may withdraw into non-participation. The person may be described as having a low frustration tolerance and as demonstrating minimal coping skills. In illustration, minor signs of rejection by a favored peer may produce a general inhibition of social interaction.

4. There are fewer events, situations, or activities in the person's environment that produce positive emotional reactions. The person has had an excessive number of failure experiences and has had fewer experiences of being successful, of being accepted, of being reinforced by a variety of people for a range of behaviors. As a result, less positive emotional learning has occurred. There are fewer events, activities, situations, people, and self-referents which produce and maintain such positive emotions as happiness, excitement, enthusiasm, glee, being pleased, and the like.

5. The usual events that produce positive emotional reactions in most persons, or that are neutral, may in fact become cues for negative emotional arousal. A teacher's smile or a display of affection would be a positive experience for most individuals, would result in positive feelings, and would serve to strengthen the behavior that resulted in these positive consequences. Observations indicate, however, that such social feedback may have the opposite negative effect on some mentally retarded persons with chronic emotional difficulties. For example, the writers recently observed a young mentally retarded adult hit a staff member in the stomach following her comment, "Ralph, I'm so proud of you for working so fast. I'll bet you're proud of yourself." Apparently this young man found such seemingly positive feedback to be

unpleasant to him and reacted in a manner that informed the staff of his emotional features.

Motivational Difficulties

The person's motivational systems differ in several significant aspects:

1. There is a restriction in the range and type of events that serve as effective incentives or positive reinforcers. There is a delay in the level of motivational development, even considering the person's intellectual limitations. The person too frequently is dependent on a limited number of concrete incentives, usually those which can be consumed such as food and drink. Other incentives, representing more developmental maturity such as achievement, persistence at an activity, being pleased with one's own activities, pleasing others, and the like, have minimal if any value.

2. In many individuals the value of incentives vary considerably from time to time. The person easily tires of any specific incentive or is quite erratic in response to any particular incentive. In other instances, the opposite is true--the person seems insatiable and will go to extremes to insure that a specific incentive (such as social attention) is provided frequently.

3. We also have noted that the person may require frequent and immediate positive consequences for learning and maintenance of prosocial behaviors. There is minimal delay of gratification, that is, the person has difficulty in postponement of satisfaction.

4. As mentioned earlier in our discussion of emotional behavior, the person's motivational system consists of excessive numbers and intensities of aversive or negative components. There are too many activities, events, situations, persons, and self-evoked and perpetuated reactions which motivate

the person to engage in avoidance behavior. That is, the person spends much of his/her psychological resources in attempts to avoid or terminate negative conditions rather than utilizing these to approach and experience positive consequences. Such aversive control accounts for a significant proportion of the inappropriate activities of the emotionally disturbed person--that is, the person reacts disruptively in an effort to escape from or reduce the aversiveness, may engage in high level overactive, and aimless activity (e.g., pacing, moving from one situation or location to another), or may become detached, lethargic, withdrawn, and just not respond at all.

Social Skills Deficits

The person is characterized by numerous social and coping skills deficits. Even though in observation of the mentally retarded with emotional difficulties our attention is attracted to the excessively disruptive and bothersome behaviors, (e.g., by his/her aggressiveness, non-compliance, temper tantrums, excessive fears and associated avoidance reactions, self-injurious behaviors, and the like), it is important to recognize that such actions typically are associated with and reflect the influence of numerous areas of social skill deficits. The person does not have alternative coping skills, in many instances, to adapt to the stress to which s/he is exposed. This observation is of significance when selecting intervention approaches. It is not sufficient merely to reduce or eliminate the excessive behavioral reactions but, more importantly, to actively teach alternative replacement behaviors/skills which can be used by the person to adapt to the expectations, stress, or demands of the social and physical environments.

Structured Learning Habilitation Approach

The Structured Learning Habilitation Approach was designed to be sensitive to each of these and related characteristics of the mentally retarded. Concepts and practices from a number of different models of human behavior were used in the development of the approach. Central to the approach is the recognition that human behvior is quite influenced by its consequences. The basic rule of positive reinforcement as articulated by B. F. Skinner and others has proven quite valuable in our understanding and modification of the emotional and behavioral difficulties of the mentally retarded (Skinner, 1974). Secondly, the approach recognizes that much of what the mentally retarded learn and do is influenced by the social models which they encounter in their daily life (Bandura, 1977). The approach seeks to insure that these social models display desired social and emotional behaviors that the mentally retarded can imitate. Thirdly, the approach recognizes that the emotional and motivational characteristics of the mentally retarded result from day-by-day experiences and can be influenced by insuring that these experiences are predominately positive (Staats, 1975). In addition, the approach makes major use of concepts from cognitive behavioral psychology relating to the role of covert verbal/mediational processes in influencing adaptive social and emotional behaviors (Mahoney, 1974; Meichenbaum, 1974; Thoreson & Mahoney, 1974). Next, the approach employs concepts from role theory and recognizes the value of systematically teaching various social roles (Ullman & Krasner, 1969). Finally, concepts of humanistic psychology are used which emphasize the importance of providing a "caring relationship" to the mentally retarded individual with emotional and behavioral difficulties, although our approach is more directive in nature than the typically client-centered model (Rogers, 1961).

Also central to our approach is the program emphasis on the initial development of structure. It is our belief that the mentally retarded person can best (most efficiently and effectively) learn self-control of his/her own behavior under highly structured learning conditions in which the person is gradually provided more and more responsibility for his/her own actions. If given too much responsibility for managing his/her own behavior initially, without having the necessary self-directing skills, the mentally retarded person is likely to experience failure. Thus, we assume initial responsibility for what the individual is to do and when it should be done, with an emphasis on external management or structure. Subsequently, our objective is to teach the mentally retarded person to gain control of his/her emotional and behavioral life. As this is done, the structure becomes internalized and the person assumes an increasing degree of responsibility for him/herself. Central aspects of this structure include the following procedures.

Concrete Behavioral Expectations

A set of concrete behavioral expectations are presented. The mentally retarded individual is informed in a pleasant but matter-of-fact manner that we expect him/her to behave in a certain fashion in various situations. Such clearly defined behavioral expectations allow the person to become aware of what is expected of him/her while in that setting (e.g., in the classroom, on the bus, on the work floor, on the playground). In addition, staff members know what is expected and therefore can represent these behavioral expectations in an informative, routine, and consistent manner in their structured and informal interactions with each individual. These clearly defined expectations provide a common basis for all staff in relating to both appropriate and inappropriate client or student behaviors. Finally, with less confusion to the retarded person as to what is expected and more consistency among all staff, a potential source of confusion and conflict is removed. Each retarded client may begin to use his or her personal resources for constructive activities instead of "testing the limits" excessively as is frequently observed when inconsistent staff expectations are present.

Specific Contingencies

A set of specific contingencies, consistent with the behavioral expectations, are presented. Recall the earlier suggestions that the behavior of many mentally retarded individuals is mostly reactive in nature. Stimulation is presented from the external environment and the person with no effective mediational processes appears to respond impulsively, automatically, or without awareness or concern over the effects which such behavior has on him/herself or others. Thus, an attempt is made to develop an awareness or cognitive and affective sensitivity to the relationship between the person's behavior and its various effects, that is, to develop "contingency sensitivity."

This is accomplished first by systematically labeling behavior-consequence relationships for the person. "John, remember, after you finish your work, you'll earn your treat," or "Marie, I would be pleased if you'd share your toys with Susan." Secondly, we encourage the person to label this behavior-consequence relationship. "Juan, what happens after you complete your reading lesson? That's right! You can play the videogame."

Next, the person is exposed to a variety of positive consequences, and informed that these are available based on his/her own behavior. As previously stated, a significant contributing factor in the development and maintenance of emotional and behavioral difficulties is the excessive amount of failure and negative consequences that the mentally retarded have experienced. Thus, we attempt to remove failure to the extent possible and provide the person frequent experiences of behavior-produced positive consequences. Each person is informed both verbally and through demonstration that staff are quite willing to provide consistent and specific positive feedback if he or she chooses to engage in the expected behaviors. This is quite a departure for many such individuals who have experienced an extremely inconsistent environment--one that has provided positive or negative consequences regardless of their behvior.

Finally, our objective is to teach and strengthen desired ways of behaving. However, if the person does engage in inappropriate behavior, we ignore it whenever possible and then guide him/her back into the desired behavior. If the person becomes highly disruptive, we suggest that s/he go to a quiet place until s/he can regain control. We then encourage the person to rejoin the activity and guide him/her into alternative ways of behaving that result in positive consequences. These types of contingencies emphasize to the mentally retarded that their behaviors, whether appropriate or inappropriate, do in fact have specific effects on themselves and others and that they can influence these effects. Once individuals begin to experience this sense of personal control, we have observed that they become more responsible and increasingly select appropriate ways of behaving. This also has a desired positive emotional effect in that the mentally retarded individuals appear to be happier, to enjoy themselves more, and to have fewer conflicts with others.

Motivational Development

Procedures for enhancing motivational development are emphasized. As discussed, the motivational features of the mentally retarded with emotiional and behavioral difficulties differ in several significant respects. Our approach is designed to improve the reinforcement value of a variety of more acceptable and personally enhancing reinforcing events. First, a systematic structured approach is used to develop new reinforcing events, through reinforcer exposure and reinforcer sampling, and to increase the effectiveness of existing ones. Considerable flexibility in the program environment obviously is required as the potential value of other types of reinforcing events are demonstrated to the client or student. To do this, we consistently pair various social events with a range of tangible and other immediately available reinforcing events. As a result, the value as positive reinforcers of these social events is increased. In addition, we insure consistent association of a variety of staff persons with those events, situations, or activities in the person's environment that serve to produce positive emotionality. After freqeunt association with these positive reinforcers, the staff persons themselves will begin to produce positive emotional reactions in the mentally retarded individuals and serve a positive reinforcement function.

Second, as noted, a disproportionate number of events in the mentally retarded person's environment have aversive qualities which influence his/her behavior through negative reinforcement. Much of the individual's lack of interest, non-involvement, or "poor motivation" may represent active avoidance reactions. In our program, aversive aspects of the environment are identified and systematically eliminated or reduced through gradual exposure to these aversive events and through positive reinforcement for approach behavior. Our objective is for those events which previously were cues for negative emotional arousal to produce positive emotional reactions in the person.

Finally, the program provides for the development of self-motivational skills. Instead of encouraging the person to be excessively dependent upon the external world for motivational direction, we teach the mentally retarded person to self-reinforce his/her own appropriate actions.

Social Roles

A variety of positive social roles are taught. The verbal labels used by the mentally retarded to describe aspects of themselves and their behavior frequently serve as cues for inappropriate behaviors. A promising cognitive behavior management strategy is one that seeks to teach the client or student a range of positive verbal behaviors denoting various appropriate non-verbal behaviors, and categorize these under such general class labels as "adult," "appropriate," or "good Adult Worker" behavior. General class terms may have little or no positive cuing and reinforcement functions when initially presented to the person. However, these can become effective cues and reinforcers for a variety of specific appropriate behaviors if frequently associated with positive reinforcement of these behaviors. "Thank you for working quietly in class today, Roger. That's good student behavior!" or "You did it, Katrina! You were a good Adult Worker and earned your money." These general terms assume an important role in teaching and maintaining other behaviors. Once these generalized labels or social roles have acquired positive properties, a wide range of new behaviors can be taught, strengthened and maintained by their use.

Social Skills

A variety of social and coping skills are taught. Frequently, even excessive inappropriate behavior represents deficit social skill areas in the mentally retarded. As a result, a central program emphasis is on teaching various social and coping behaviors that can be used in stress or conflict situations. As an example, if the person has frequent conflicts with peers, a step-by-step approach is provided to teach the person alternative adaptive ways of interacting with peers. If the person is excessively fearful of specific events or situations, a program for reducing the fear and developing more positive emotions is developed specifically for that person. Again, the emphasis is on direct teaching of those particular skills required by that person which will replace his/her inappropriate ways of thinking, behaving, and feeling.

Applications to Various Problems

Briefly, we have used these structured learning habilitation approaches with a variety of emotional and behavioral difficulties presented by severely, moderately, and mildly retarded children, adolescents, and adults in residential, educational, and vocational training settings. Our research and clinical results have been quite positive in most instances. Problems of conduct, phobias and fears, depression, impulse-control, obsessive-compulsive difficulties, excessive shyness, and interpersonal relationship problems have all responded favorably (e.g., Cole, Gardner, & Karan, in press; Gardner, Cole, Berry, & Nowinski, 1983; Gardner, Clees, & Cole, 1983).

A most encouraging feature of the therapy approach is that the program can be implemented by individuals in the natural environments of the mentally retarded, that is, by parents, work activities program staff, teachers, care-takers, and the like. Except in unusually difficult cases, it is not necessary to move the person into a psychiatric treatment facility.

In closing, we take the position that more traditional forms of psychotherapy are relatively ineffective in treatment of emotional and behavioral difficulties of the mentally retarded. A more direct educational approach implemented by persons in the natural world of the retarded individual is suggested as a more feasible and effective approach.

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DRUG GIVERS, TAKERS AND MONITORS: INTRODUCING A BEHAVIORAL-CHEMICAL INTERVENTION AND MONITORING STRATEGY

Robert L. Schalock

Drug abuse is common among the developmentally handicapped, if by that term one means the overuse of prescribed drugs and the underuse of delivered services. Unfortunately, psychotropic medication is often used as a substitute for services, which is an alarming condition when one consideres that high dosages of either psychotropic or anticonvulsant medication can impair learning, cognitive performance, and adaptive behavior (Dekaban & Lehman, 1975; Gadow, 1981; Stores, 1975). Additionally, current drug treatment evaluation and monitoring practices are generally inadequate (Kaufman & Katz-Garris, 1979; Tu, 1979) which explains in part the judicial and accreditation proscriptions against using behavioral controlling medication for punishment, convenience of staff, or in amounts that affect the person's ability to respond to habilitative programs.

The author is not proposing a war on drugs. However, it is apparent from a number of sources (Gardner & Cole, 1983; Inoue, 1982; Menolascino, 1981; Sprague & Boxley, 1978; Van Krevelen & Harvey, 1982) that there must be a better interface between the person who prescribes, the agency person who transmits information to the prescribing physician, and the staff who monitor the drug's effect(s). The purpose of this article is to outline a behavioral-chemical intervention procedure that has been used successfully to integrate the drug giver, the drug taker and the line staff who are responsible for monitoring the drug's effects.

The behavioral-chemical intervention procedure was implemented to deal with "drug abuse" reflected in the following scenario: Clients were often taking multiple drugs frequently prescribed by different physicians unaware of one another's prescriptions; personnel were unaware of the initial reason for the prescription, the desired effects, or the possible contraindications; and physicians were not providing meaningful data regarding desired effects and time lines within which to evaluate the drug's effects.

The actual procedural steps for initiating chemical intervention, reducing dosage or changing medication are outlined below. More details are available in Schalock (1982).

1. Procedure for Initiating Chemical Intervention.

    a. Implement behavioral extinction program and evaluate for 30 days.
        (1) after 30 days, evaluate the results of the program in light of the behavioral objectives
        (2) if progress is noted (as determined by the data) the program should be reviewed and renewed by the Behavior Management Committee for another 30 days
        (3) if progress is not noted, then chemical intervention utilizing a "behavior management drug" may be requested and implemented

    b. When chemical intervention is initiated and with each subsequent dosage change treat as a phase change in your behavioral extinction program and do the following:
        (1) draw lines across program sheet and graph
        (2) date each
        (3) title phase change as "Chemical Intervention"
        (4) in Teaching Strategy Column, specify the medication and dosage

    c. In reference to the chemical intervention, the attending physician will be encouraged to:
        (1) after 30 days evaluate in light of the established objectives
        (2) if objectives are met, begin reducing the dosage
        (3) if objectives are not met, review and renew the chemical intervention

2. Procedure for Reducing Dosage or Changing Medication.
    a. Identify the target behavior for which the drug was probably given.
    b. Initiate a behavioral extinction program using the regular procedure.
    c. After a 7-30 day baseline period, request a medication reduction. If physician does not reduce the level, the Behavior Management Committee decides to continue or discontinue the program.
    d. If medication is reduced, continue the behaviorally based extinction program and do the following:
        (1) draw lines across program sheet and graph
        (2) date each
        (3) title phase change as "Chemical Change"
        (4) in Teaching Strategy Column, specify the medication and dosage

Two possible outcomes of the above procedures are outlined in Figure 1. The baseline data reflected high frequency head banging behavior. The behavioral intervention employed a standard differential reinforcement of other (DRO) approach to extinction. Example one reflects what happens at the 30-day review if the behavioral program appears effective: Continue it, with no chemical intervention. Example two reflects the converse.

This approach to behavioral-chemical intervention and monitoring has been in effect for the last three years. Longitudinal data have been collected and are currently being analyzed using the intervention and evaluation designs summarized in Table 1.

The remainder of the article presents three examples reflecting the results obtained thus far. One example summarizes the results of a medication change on head banging behavior. The second is an example of chemical intervention following unsuccessful behavioral intervention. The third is an example of lowered drug dosage following successful behavioral intervention. The reader should take note of the following parameters to the data presented:

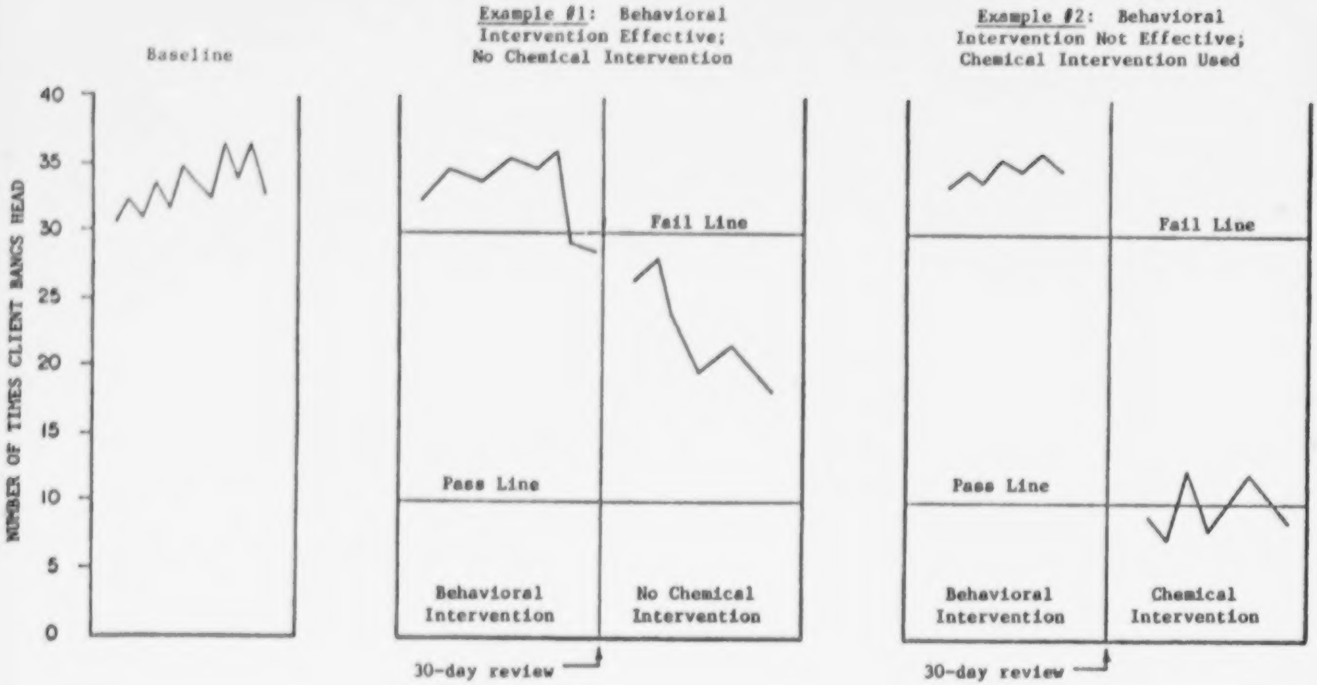

Figure 1: Graphic Representation of Possible Effects of Behavioral-Chemical Intervention

Table 1

INTERVENTION AND EVALUATION DESIGNS FOR BEHAVIORAL-CHEMICAL STUDY

Intervention Design

(1)	(2)	(3)
Baseline Condition	Behavioral Intervention	Chemical Intervention
Drug	If successful ------------- If unsuccessful ------	Lower Dosage Change the medication

Temporal Sequence

Evaluation Design

	(1)	(2)	(3)
	Baseline Condition	Behavioral Intervention	Chemical Intervention
# on Drug/Dosage	---------		--------
# Drug Free	---------		--------
Frequency of Target Behavior (per day)	--------		--------

1. The data focus on a combination of behavioral and chemical intervention; they do not deal with behavioral intervention only.
2. The intervention deal with stereotypic or descriptive behaviors with the goal to reduce the frequency of the behavior.
3. Chemical intervention involves only drugs used for behavioral management including major tranquilizers (navane, thorazine, mellaril, and haldol) and minor tranquilizers (librium and valium).
4. Chemical intervention is under the control of generic physicians, or psychiatristis.

Glenda

Glenda is a 29 year old, severely retarded non-verbal female client. She resides in a large group home with eight other female clients. She had a history of polydrug usuage, including neurolepticees, anxiolytics, and sedatives-hypnotics. Glenda displayed a number of destructive behaviors including clothes ripping, property destruction, and head banging. The latter was chosen as an appropriate one to monitor and attempt to reduce with the previously described behavioral-chemical strategy. Glenda entered the program receiving thorazine, 150mg QID. On this dosage, the frequency of head banging (see Figure 2) averaged 21 times per day; during the baseline period, the range was 2 to 50 and the standard deviation 14. Thorazine was replaced by mellaril (25 mg TID), which resulted in a dramatic drop (mean per day, 3.7; standard deviation, 2.9). The mellaril was reduced still further (25 mg BID) after five months with essentially the same reduction in the head banging.

David

David is a 32 year old, moderately retarded male client. His primary disability is mental retardation; his secondary is epilepsy for which he takes anticonvulsant medication. He was taking no neuroleptic or anxiolytic medications at the time of this study. However, he did develop a "behavioral problem" in that verbal requests made of him frequently (93% of the time, see Figure 3) resulted in his either threatening to hit the requestor with his

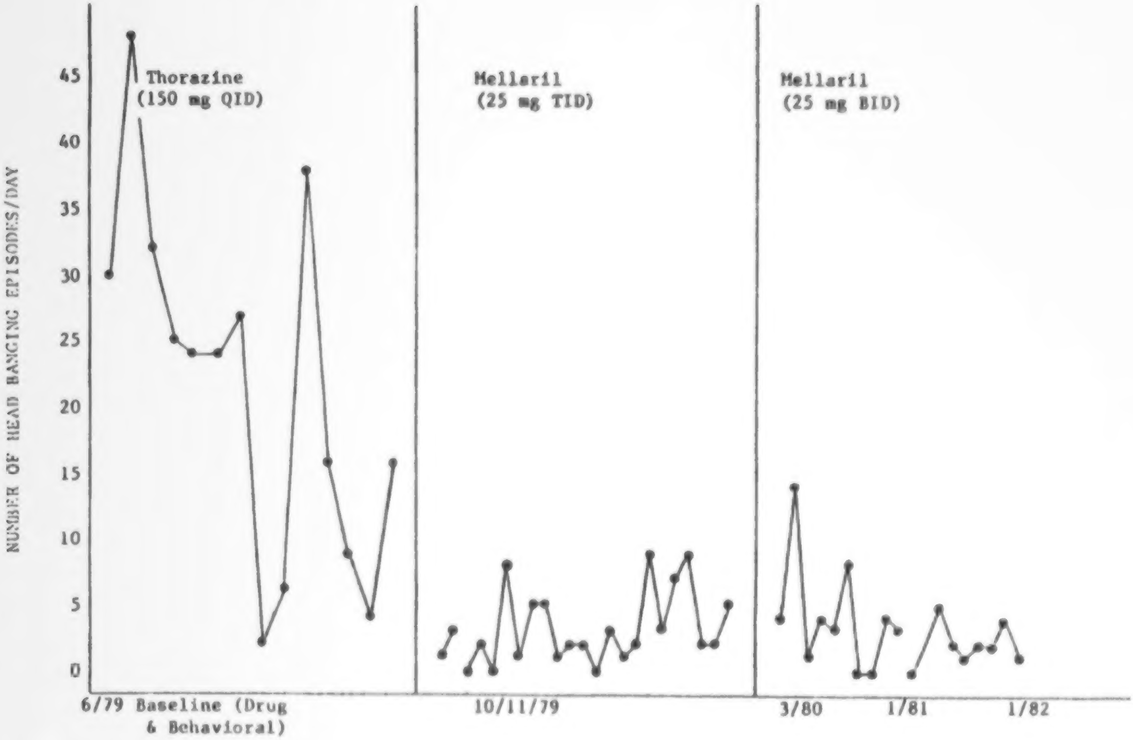

Figure 2: Example of Medication Change

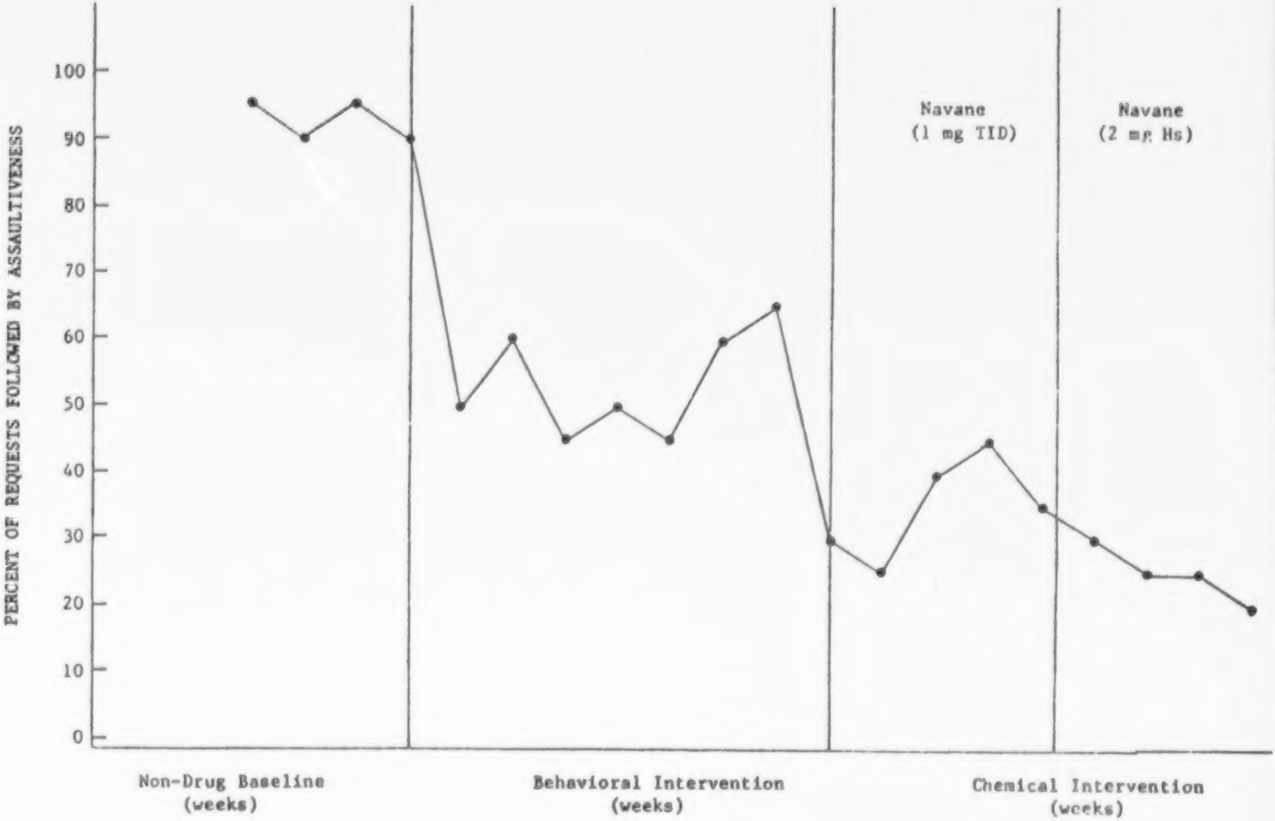

Figure 3: Example of Chemical Intervention Following Unsuccessful Behavior Intervention

belt or actually doing so. A number of intervention strategies had been attempted prior to the techniques summarized in Figure 3. These unsuccessful ones included counseling at the mental health center, relaxation training, modeling based on social learning theory, and transfer to other program sites. The behavioral intervention program initiated after the baseline period reflected in Figure 3 utilized a traditional DRO approach: David received points toward a stereo for each request he complied with, without threatening or actually using his belt; verbal threats resulted in a five-minute "time out from reinforcement period"; physical assault with the belt resulted in an overnight stay at the local jail. These procedures (which were approved by the Behavior Management Committee) reduced after eight weeks the threatened or actual assaultiveness from 93% to 51% of requests. The committee did not feel this was low enough, so navane (1 mg TID) was prescribed by David's physician. Within a month, the percentage of threats or assaults was reduced to 31.5%; within two months to 22.5% with a slightly lower (2 mg HS) dosage. The intent is to reduce the negative behavior to zero with the current dosage, and then gradually remove the navane, continuing the behvioral intervention program that has been in effect throughout this period.

Philip

Philip is a 39 year old, severely retarded non-verbal male client. As Glenda, Philip has a history of polydrug use, and was receiving thorazine (100 mg QID) and librium (100 mg QID) during the baselining of his pica behavior (see Figure 4). The pica behavior was not particularly high frequency, averaging about one episode per day during the baseline period (mean per week - 4; standard deviation, 0.7). It was very aversive to the staff, however, because of the objects ingested. The behavioral intervention program

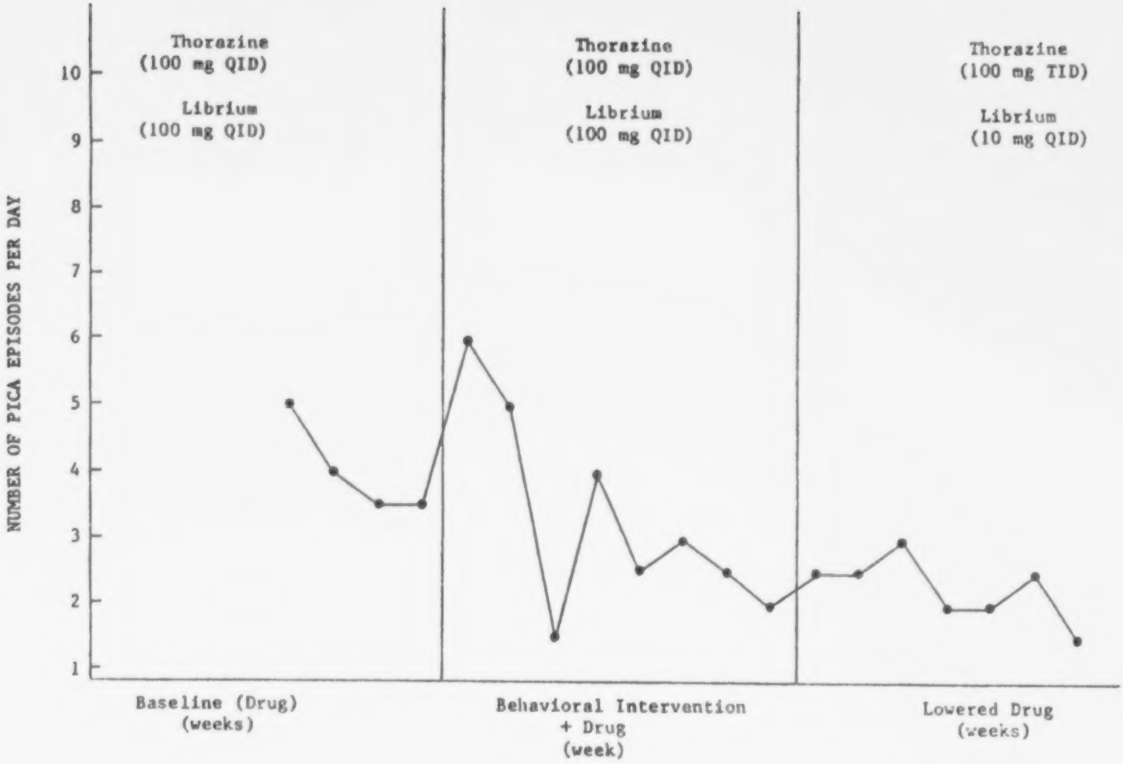

Figure 4: Example of Lowered Drug Dosage Following Successful Behavioral Intervention

initiated involved overcorrection with positive practice and restitution components (Foxx & Martin, 1975). This procedure reduced the pica within two months to an average rate of 3.2 per week (standard deviation = 1.5). At that point, thorazine was reduced by 100 mg per day, with a continued decrease and stabilization of the ingestion rate (mean per week for the last two months has averaged 1.9; standard deviation, 0.4).

In conclusion, DD professionals face a number of "Catch 22s" when dealing with clients who are on behavioral control drugs. One is that clients with significant stereotypic and disruptive behaviors frequently cannot be controlled through behavioral intervention programming, despite the fact that we are all aware that high dosages of either psychotropic or anticonvulsant medication can impair learning, cognitive performance and adaptive behavior. The second is court or accreditation imposed standards. The Wyatt vs. Stickney decision states in part, for example, that medication cannot be used as punishment, for convenience of staff, or in amounts that affect the individual's ability to respond to habilitative programs. Similarly, ACMR/DD standards specify that drugs used for behavior management are used only as an integral part of an I.P.P. that specifies (10.1-10.1.3): (1) a time-limited prescription; (2) the data to be collected to assess progress toward treatment objective; (3) documents potential harmful effects, and (4) provides for gradual diminishing of dosage and ultimate discontinuation. And the third catch is that direct care personnel are the staff who are in most contact with clients, and yet are typically the least trained in monitoring and evaluating drug effects. The behavioral-chemical intervention strategy described in this paper has helped us deal with these "Catch 22s." Specifically, it has allowed monitoring drug effects on specific behaviors, reducing in some cases the dosage prescribed for behavioral control, sensitizing staff to their role in monitoring and evaluating drug effects, and improving the interface between agency staff and generic medical and mental health professionals.

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PART II - ASSESSMENT PRACTICES

Answers to questions such as: Who, does what, to whom, for what purpose, when, where, and why provide the functional bases from which hypotheses are developed and remediational strategies implemented. The continuing accummulation of this information, once the intervention starts, helps determine the program's effectiveness and/or need for change. These activities are all subsummed under the processes of contemporary behavioral assessment.

The three articles in this section address various aspects of this process noting some of the limitations of present practices while placing an emphasis on the interactions between individuals and their environments. There are two major themes elaborated in this section. The first is that intervention should not exist within a vacuum independent of a thorough functional assessment. The second theme is that the context within which behavior(s) occurs must be considered since it provides the meaning and values that constitute the standards of acceptable performance.

Karan and Schalock, address this latter theme in their article entitled "Who Has the Problem? An Ecological Perspective on Habilitation Programming for Behaviorally Involved Persons." They note that although behaviorally disordered persons are often the most visible participants in programs of behavior change they are also members of unique, complex, and sensitive ecological systems. Therefore, various aspects of these systems should also be considered in habilitation planning and implementation.

In their article entitled "Selecting Intervention Procedures: What Happened to Behavioral Assessment?" Gardner and Cole reviewed thirty-eight behavior therapy studies describing the effectiveness of various intervention procedures in the treatment of aggressive behavior of mentally retarded children and adults. Their findings revealed that only six studies made use of behavioral assessment data. In fact, not only was there an absence of such data but most studies used procedures designed to suppress aggressive behavior as the sole intervention procedure. Such pre-intervention biases concerning the selection and treatment procedures that are independent of specific assessment data are viewed as inconsistent with minimal standards of professional practice.

In the final article in this section entitled "An Ecological Approach to Assessing Vocational and Community Living Skills" Karan and Schalock argue that the appropriate framework from which to base assessment and remediation efforts is dually focused on both the person and his/her environment. When this is done, assessment evaluates both the person and the environment while remediation focuses on facilitating successful matches between the two. The hallmark of this approach is concerned with maximizing the fit while reducing the discord between people and their environments.

WHO HAS THE PROBLEM?--AN ECOLOGICAL PERSPECTIVE ON HABILITTION PROGRAMMING FOR BEHAVIORALLY INVOLVED PERSONS

Orv C. Karan and Robert L. Schalock

Habilitation is often characterized by efforts to train skills in one setting which are required in other settings. It is then expected that trainees will transfer their acquired skills and interact with their new environments in an appropriate manner. An assumption implicit in this approach is that the trainees will change while the environments remain relatively constant.

There are probably few habilitation professionals who would accept this assumption. Yet, in actual practice the major emphasis in habilitation programs is frequently placed on the handicapped person and not on the systems of persons, places, and possible environmental modifications that will reduce the mismatches between people and their environments.

The major thesis of this article is that effective habilitation programming requires a comprehensive perspective which incorporates functional features of a particular individual's ecological system. At times, particularly when planning and/or implementing habilitation programs, these features must become the primary targets of change; indeed, they may well determine whether the person's habilitation goals are achieved. This article discusses various aspects of the environments which should be considered in habilitation planning and implementation.

Each of the following sections represent some functional aspect(s) or characteristic(s) of the ecological systems to which many developmentally handicapped persons belong. It has been the authors' experience that those who have behavioral problems are, in particular, frequently under the influence of and/or affected by the aspects discussed. Each section begins with a brief series of questions, the answers to which could have a significant bearing on the type of habilitation approach eventually taken. These questions, which are meant to be representative and not exhaustive, focus less on the person and more on the environment and therefore should give a broader perspective for better understanding why a particular individual's behavior may remain resistant to change in spite of the best intended applications of the principles of learning and normalization.

Unreasonable Expectations

1. Whose standards are being used to determine that a person's behavior should be changed?
2 Are the objectives of the people implementing the program reasonable, operational, and measurable?
3. Is the program reactionary, retaliatory, or therapeutic?

A person's learning and behavioral difficulties rarely develop overnight. In most cases, they have existed for a considerable period of time. Invariably, however, once an individual's habilitation program is implemented there is a tendency to expect immediate and positive results. If the person's behavior does not improve, then the program may be discarded as useless or changed in some way. Eventually, the staff may burn-out due to unfulfilled expectations. When this happens it is not unusual to see either the physical or emotional withdrawal of the affected staff or the removal of the person to a more restrictive setting.

Improvement in the behavior and learning patterns of individuals participating in habilitation experiences is an evolving process. It is unrealistic to expect that a person with a history of deficient or maladaptive behavior(s) will quickly change and relate to his/her world in different ways simply because someone has developed a "new program."

No program, even under the best circumstances, is comprehensive enough to thoroughly consider all situations that may influence the person and lead to unusual and unanticipated problems. It is entirely possible for even a well-conceived program to boomerang to the extent that its application may precipitate either more extreme behavior or other problems.

Despite the fact that no one program can deal with the variety of situations which occur, there is often a tendency for those responsible for implementation to continue applying them even when the conditions and the behaviors are no longer appropriate. But, programming should neither precede nor preclude common sense! If an intervention is applied and the circumstances change so that different, more intense, and/or more outrageous behavior(s) occurs there is nothing wrong with using one's common sense to "try another way."

The Fallacy of Consistency

1. Is it realistic and/or appropriate to establish a specific treatment program in one particular setting given the likelihood of confounding community variables in other settings?
2. Do all those who interact with the person agree that his/her behavior(s) needs to change?

3. Is it possible to obtain the cooperation of at least some of the people in the person's natural environment who will support the program goals?

One of the frequent themes of contemporary habilitation practices is the constant reminder that those applying remedial strategies must do so consistently and systematically. But, who does anything systematically and consistently? Consistency should perhaps continue being a legitimate goal for which to strive, but sooner or later, we must accept the fact that no two people do things in the same way (Marston, 1979). This natural variation among people strongly suggests that even the most ideally planned programs will not be implemented exactly as they were designed.

An additional complicating problem is the fact that once in the community there are simply too many naturally occurring events that compete with even theoretically sound habilitation programs. For example, how many times have planned programs attempted to reward some behavior(s) while ignoring others only to have a spontaneous interaction between the trainee and his/her parents, other trainees, other staff, or the person on the street result in others rewarding the very behavior(s) that the program is trying to weaken? This incongruity among those in the person's ecological system makes it difficult for him/her to learn which behavior(s) is normally acceptable and which is not. It further indicates the necessity for involving as many significant others as possible in the original program development and ongoing training activities.

Responsibility Center

1. Is the program theoretically sound but pragmatically unrealistic or the converse?

2. Who is making the program decisions and on what basis?
3. If a person is not progressing, what resources are available to assist?

Is it not interesting how people are willing to accept responsibility when a particular habilitation program succeeds. But where does the responsibility fall when the trainee is unsuccessful? If improvement does not occur, failure is often attributed to the trainee because he/she lacked interest, motivation, failed to cooperate, or any number of other reasons all of which put the blame on the trainee. Such explanations tend to provide an all too comfortable rationale for the trainee's lack of progress.

The responsibility for failure should not necessarily be placed on the person or handicap. Instead, those responsible for habilitation must be able to either modify their programs to respond to the needs of the trainee or else acknowledge that they need assistance if a person is not progressing. The methods which many individuals use to evaluate their effectiveness, however, are usually not based upon data which are sufficiently sensitive to allow for appropriate and realistic decision making. Instead, many program decisions tend to be made by armchair quarterbacks on the basis of personal biases or rather gross measures.

One of the strong points of contemporary habilitation practices is the emphasis on individuals in the trainee's natural environment as the primary change agents. To not include such individuals in the decision making process, and to simply hand them a program prescription which they are expected to implement, is almost certain to lead to difficulties. At the very best the program may be followed; more likely, it will be sabotaged in some way.

Who Has the Problem?

1. Are programs that are designed for resolving crisis situations really in the best interests of the person and those in his/her environment?
2. Are outside consultants knowledgeable of and familiar with the person's daily activities and immediate vocational and residential environments?
3. Are staff treating the problem or was the problem created by the treatment?

At one time or another most workers in the field have been exposed to developmentally handicapped individuals who start behaving differently for "no apparent reason." Often such individuals can go for lengthy periods with minimal or no difficulties and then without any clear warning their behavioral patterns change drastically. Upon reviewing their history one may or may not find that the pattern has occurred previously. But, regardless of past history it is commonly assumed that the different behavior is due to something "going haywire inside" the person. Referrals to physicians, psychologists, or some other "expert" then occur. Drugs and/or behavior modification recommendations may soon follow. Unfortunately "quicky solutions" may only perpetuate existing problems, or create new ones. For example, the side effects of medication are sometimes viewed as behavior problems themselves, thus resulting in a vicious cycle of increased dosage levels for increasing problems (Stuart, 1970).

Although organic dysfunction must be considered one must also constantly try to maintain a proper perspective when unusual behavior occurs. Perhaps such behavior is nothing more than an indication that the person's ecological system is out of sync and reverberating. Although the exact reason(s) precipitating the problem may never be known, it is almost a certainty that the person's unusual behavior will receive attention. This is even more likely if the individual has been well behaved and then suddenly begins displaying different behavior. An obvious staff reaction is sincere concern. But, this is also a time of highly charged emotional involvement by the staff and other concerned individuals which may only intensify the problem. When a new behavior starts occurring it may be that the best thing is to let it pass by itself since the behavior may simply be the way the person is reacting to some alteration in his/her routine.

We all react to changes in our routines but most of us have enough coping skills, experiences, and diversionary opportunities that we do not usually act out in socially unacceptable ways. For someone who is developmentally handicapped, the alteration in their lives at the loss of a favored person, friend, or possession, is at least as great if not greater than most people since on a relative scale these relationships often occupy a significantly greater portion of their daily lives. We have simply not learned very well that developmentally handicapped persons experience ups and downs and all the other emotional states that are common to all of us.

What's A "Staffing?"

1. What is the purpose of the meeting and are there any hidden agendas?
2. Who is involved and how much do they really know about the person's actual behavior(s)?
3. Are observations based on objective data or subjective impressions?

Whenever a group of people meet it is unlikely that all will perceive a problem in the same way. The assertiveness or professional status of a particular member or members will sometimes force the group in a direction that is really not in the person's best interests yet the unassertive members may be reluctant to voice their opinions. But, one must always question the data upon which any decisions which effect the life of another individual are being made. Solving another person's problem(s) is not easy yet we frequently hold staffings just for that purpose. Such problem solving may require much more than a single meeting, yet all too often single meetings serve as the basis from which major alterations in the person's life occur.

The format of these staffings often follows a typical pattern. First, a major amount of time is spent talking about the person with no apparent real direction coming from the discussion other than one individual after another relating various pieces of andecdotal clinical information. Then, as the time begins drawing to a close, someone proposes a hypothesis relative to why they think the person may be acting in a peculiar way.

If the hypotheses sounds reasonable (the later the staffing time, the more reasonable the hypotheses), others may join in agreement. It is, of course, possible that any given hypothesis is valid. Before any program designed to change another's behavior is implemented, however, it is wise to understand its basis.

Interpreting behavior or the reasons for behavior leads to certain assumptions that may very well create a further separation from the actual reasons for the problem. How one interprets another's behavior tends to influence one's reactions. Statements we have all heard such as "he does that just to spite me", or "he knows damn well what he is doing", or "no one else gets any special privileges why should he", obviously lead to treatment decisions that are different from those that would be reached if the same behavior generated less emotionally charged interpretations. For example, two different treatment strategies would be used if a person's chronic tardiness was interpreted as manipulative rather than because the individual could not tell time.

Community Options or Option?

1. To what extent is the person's inappropriate behavior a function of the setting's inappropriateness?
2. Why should the person be learning what he/she is being taught?. . . What is its relationship to the broader community of jobs and independent living options?
3. Does the person value his/her placement in this setting? . . . Do the significant people in the person's life value the setting?
4. Have parents and/or others of significance been active participants in decision making?
5. How much do parents and others of significance really know about the options that exist and how supportive are they of the options?

Even though there should be a wide variety of community vocational, recreational, and residential opportunities available for adults with different degrees of handicap some communities consider themselves fortunate if they have a single sheltered workshop or work activities program and a few group homes. This may reflect in part the community's naivetè with respect to the developmentally handicapped who are often regarded as an homogeneous group rather than as individuals. Single programs cannot meet the multiplicity of vocational, social-interpersonal, leisure time, and independent living needs. Yet, these programs are unrealistically expected to do just that.

Individuals who are developmentally handicapped are heterogeneous and have a full range of personality characteristics, needs, interests, and behavior patterns. To continue to group developmentally handicapped persons together as if they are somehow all the same only perpetuates the tendency toward similar programs for all.

Parents and "significant others" often do not feel that vocational success or independent living are realistic goals for their protegès and may refuse to believe or to cooperate with individuals who feel otherwise. The person who is developmentally handicapped may consequently be caught in a conflict between those who feel too much is being expected and those who feel too little is expected.

Related to this is the very natural fear of the unknown which faces parents and others whose protegès either reach adulthood, and therefore no longer qualify for programs generally available through the public school system, or are being considered for community placement after years of institutional living. It has often proven to be terribly unsettling for parents and others to realize that it is time to start planning toward vocational and independent living objectives because of the many implications that this realization generates. Inevitably there can be substantial resistance when this critical time comes, but avoiding the topic does not make it go away.

Permanent Program Trap

1. What is the basis for the curriculum--Does it teach skills which are appropriate for the community vocational and residential options?
2. Are the motivational incentives appropriate and/or do they work?
3. Are the exit criteria for more restrictive programs compatible with the entrance criteria for less restrictive programs?
4. Are steps being taken to encourage good working relationships between and among agencies?

Many people develop and implement habilitation programs using the normative developmental model as their guide (Haring and Bricker, 1976). Unfortunately, one of the problems that may result when a normative developmental model is applied to adults is that some persons will spend months, years, or even lifetimes trying to learn prerequisite skills and never advance. For example, rather than offering an actual work setting, where all the requisite skills have a context and are parts of a total experience, some pre-vocational programs attempt to deal with theoretical, but nonfunctional, prerequisite skills separately.

It is time to reconsider approaches that often result in locking people into perpetual prerequisite training which is functionally unrelated to the real world (Switzky, Rotatori, Miller, and Freagon, 1979); instead, individuals should be prepared to perform specific skills in and for specific natural environments (Brooks and Baumeister, 1977).

A related issue is that many of the judgements made about how people will cope with less restrictive settings and conditions are often based upon impressions made of them in restrictive settings. For example, decisions regarding an institutionalized individual's community adjustment are often based upon that individual's behavior in the institution. Is it not possible that any judgements about the person's ability to adjust to community life would be better made in the community rather than in the institution? Most community settings, however, use money as a primary medium of exchange for paying for goods and services. Those handicapped persons who have never learned the value of money may also have not acquired a "work ethic" (Martin, Flexer, and Newberry, 1979) and money therefore has relatively little meaning. Conversely, current funding patterns also penalize those who earn more than a modest amount of money. The loss of Social Security benefits, rent subsidies, and/or medical assistance benefits, are among some of the penalties imposed on handicapped persons who are attempting to achieve vocational equality with their non-handicapped counterparts.

A major obstacle for normalization is inevitably the lack of coordination found among the multiple agencies serving severely handicapped persons. Professional rivalries, territorial rights, theoretical differences, and poor interagency relationships often result in duplicate or contradictory programs rather than programs which supplement and augment each other. It is quite natural for service providers to feel as if their unique contributions are more important than any other. This chauvinism usually does not serve the best interests of the person. It is amazing, in fact, that so many developmentally handicapped persons function as well as they do in light of the mass of conflicting information they regularly process as a result of their involvement with so many different individuals.

Barriers to cooperation exist because of fear; insufficient information, and environmental factors. Fears relate to being absorbed into or controlled by other agencies; that failures or inadequacies will be discovered and exposed; that funding sources will disapprove and cut off funds; that an exchange of resources will mean losing them, or at least getting less than you give; and that innovation or change will result in "working yourself out of a job."

Poor interagency communication due to insufficient information occurs when agencies do not even know that other agencies exist or at best have only insufficient information about other agencies' functions and resources or when the staff feels so overworked that they have neither the time nor the inclination to plan or see other possibilities. Environmental factors contributing to reduced cooperation are those where personalities, professional tradition or prejudice get in the way, or where competition for clients and other resources exist.

Conclusion

Attempting to create changes in a person's behavior without simultaneously recognizing, respecting, and at times modifying the delicate balance between the person's behavior and the systems of persons, places, and things which interact with the person has been a critical oversight in our efforts toward normalization.

Vocational programs must learn to communicate and coordinate with community living programs; outside consultants and care providers should not isolate their input and therapies from the rest of the big picture; and parents and other family members must understand both the assets and liabilities their special relationships can have. Cooperative teamwork and systems level case management are essential to foster an individual's growth and development and are the keys to a well balanced and supportive ecological system.

We have done well over the last decade in developing the technology for behavioral change strategies; we have done less well in environmental modification (Schalock, 1982). Habilitation for the behaviorally involved person needs to focus on modifying both the person's behavior(s) and the environment if realistic and permanent change is to occur.

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SELECTING INTERVENTION PROCEDURES: WHAT HAPPENED TO BEHAVIORAL ASSESSMENT?

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The three basic purposes of behavioral assessment are those of (1) description of the client problem, (2) selection of intervention program components based on hypotheses about how characteristics of both the client and environmental conditions and contingencies are related to the problem and its resolution, and (3) evaluation of treatment outcome. Birnbrauer (1978), Ciminero (1977), Goldfried (1977), Goldfried and Sprofkin (1976), Kanfer and Saslow (1969), and Nelson and Hayes (1979) provide detailed descriptions of each of these purposes.

The present article relates to the second purpose, that of selection of intervention program approaches based on client assessment, with specific reference to mentally retarded clients who exhibit aggressive behaviors. The thesis of the paper is that the behavior therapy literature addressed to this subject group and problem area, while demonstrating sensitivity to the first and third purposes of behavioral assessment, has almost completely ignored assessment activities concerned with selection of intervention program components. That is, the behavioral intervention programs described in the published literature reflect minimal if any relationship to environmental or client data other than the specific target (aggressive) behavior exhibited. The omission of such critical assessment data is discussed from both professional practice and ethical positions. Minimal standards of behavior therapy programs are suggested.

Problems of Aggression

One prevalent problem among the mentally retarded, and especially those who live in institutional settings, is the presence of various forms of physical and verbal aggression (Eyman & Call, 1977; Repp & Brulle, 1981). In fact, writers have emphasized the continued presence of aggressive behaviors as a major barrier to community placement (Eyman & Call, 1977), as a major reason for return to the institutional setting following unsuccessful placements in the community (Intagliata & Willer, 1982), and as contributing to vocational failure (Schalock & Harper, 1978). Additionally, educators in community and residential facility training programs rank aggression as one of the most difficult to manage problems among their mentally retarded students (Wehman & McLaughlin, 1979). The problem, thus, is a clinically significant one which requires competent and comprehensive research and clinical behavior therapy attention.

Standards for Behavior Therapy Programs

In the opinion of the writers, even the most basic or minimal standards for behavior therapy programs aimed at resolution of clinically relevant problems of clients (such as aggression in the mentally retarded) would require that treatment procedures reflect a close relationship to information obtained in a behavioral assessment. This is especially true in light of the limited availability of empirically based treatment packages or components which represent best approaches to influencing various types of problem behaviors. Evans and Nelson (1977) emphasize the absence of such packages in child behavior therapy. Although package development is appearing in adult behavior therapy (e.g., social skills training), such development remains at a beginning stage. Hersen and Bellack (1977), in discussing the area of social skill deficits in adults, denote the potential value of "automatic application" procedures in their statement, "As research in this area accumulates, the most effective behavioral technique for a given deficit will have been identified, thus permitting its 'automatic' application, given the particular restrictions or contraindications of the case" (p. 548).

Unfortunately, no such "automatic application" approaches are available for treatment of aggressive behavior in mentally retarded clients (Forehand & Baumeister, 1976; Repp & Brulle, 1981; Schroeder, Mulick, & Schroeder, 1979; Touchette, 1978). The clinician, thus, when faced with these clients/problems is required to develop an individualized treatment program based on assessment information.

From a behavioral assessment position, the behavior therapy program should meet the following minimal criteria:

1. The intervention program used should be based on behavioral assessment data which provide the basis for hypotheses concerning the functionality of the problem behaviors, e.g., use of an extinction procedure would be based on the hypothesis generated from specific client assessment data that at least one function of the client's aggressive behavior was that of producing social attention from staff. As a second example, use of a desensitization procedure to reduce or eliminate the aversive qualities of a required program activity may be based on the hypothesis that the person's aggressive outbursts are maintained by negative reinforcement as these actions terminate or delay staff attempts to get the client to attend and/or participate in the program activity.

2. The treatment program devised should reflect assessment data concerning possible relationships between the problem behaviors and both (a) external stimulus control features and (b) various client features. In illustration, studies of aggression in the mentally retarded indicate that various improvements in the physical and social environments of institutionalized children and adults may result in reduction in problems of aggression (e.g., Boe, 1977; Levy & McLeond, 1977; Murphy & Zahm, 1978; Rago, Parker, & Cleland, 1978). Fechter (1971) and Talkington and Altman (1973) provide data suggesting that exposure to aggressive models increases the likelihood of aggressive behaviors in mentally retarded adults with a history of aggressive outbursts. The treatment program may focus on changing such physical and social environmental conditions if assessment data indicate that these are present and thus are hypothesized to contribute to the problem aggressive behaviors.

As an example of a possible relationship between aggressive outbursts and specific client characteristics, assessment data may suggest that a client with frequent occurrences of verbal and physical aggression has minimal self-control skills under provocative peer stimulation. The intervention focus in this case may well be on teaching the person specific mediational skills which could be used to cue alternative conflict resolution actions (Gardner, Cole, Berry, & Nowinski, 1983; Harvey, 1979; Harvey, Karan, Bhargava, & Morehouse, 1978).

From professional practice and ethical viewpoints, the intervention program should meet the following additional criteria:

3. The program should include specific procedures for developing, strengthening, and maintaining specific prosocial behaviors to replace the

aggressive behaviors. If skill development procedures are not included, a conceptual and/or data-based justification or rationale for the exclusion should be presented. That is, the program should include a rationale for assuming that alternative prosocial behaviors are in the person's repertoire and are quite likely to occur under conditions of suppression or elimination of the aggressive behavior. As an example, use of only a behavior suppression procedure such as time out (TO) or response cost (RC) would be based on the speculation gained from assessment data that alternative prosocial behaviors (a) were in the client's repertoire, (b) would occur when the punished behavior was sufficiently suppressed, and (c) would maintain predominance over the suppressed behavior after the suppressive functions of the TO or RC procedures had dissipated. In addition, baseline and program evaluation (intervention) data should be included to demonstrate that such prosocial competing behaviors have, in fact, increased in strength at a level significantly exceeding baseline strengths and that programmed or natural contingencies are available to insure continued predominance of these prosocial behaviors. The therapist, thus, should not be satisfied with the mere absence of reduction in strength of inappropriate aggressive behaviors.

A program composed of a suppressive procedure such as TO, even when paired with an unspecified differential reinforcement of other behaviors (DRO) procedure, would not ipso facto satisfy this criterion of development of replacement behaviors. In illustration, Bostow and Bailey (1969) used a combination TO & DRO procedure in a program designed to reduce the loud and abusive verbal behavior of a 58 year old institutionalized mentally retarded and physically handicapped woman confined to a wheelchair. The client's verbal tirades centered around her demands for various objects and services and her complaints of mistreatment by staff. She also frequently refused to take her required medications. On each occasion of inappropriate verbalizations, the physically disabled client was wheeled to a nearby corner of the day room, removed from her wheel chair, and placed on the floor. She remained on the floor for two minutes, after which a 15-second interval of silence was required before she was placed back in her chair. Also, an escalating DRO schedule was used to reinforce her for periods of remaining quiet. The therapists concluded:

> Ruth learned that if she simply sat quietly, most of her needs would be met in a short while. In addition, she would occasionally raise her hand and whisper a request to an attendant. She became less of a problem at medicine time after she had been put on the floor several times for screaming at the aides who brought her medicines. The screaming, shouting, and loud cursing, which the staff had tolerated for years thus came under control of this combination of time out and reinforcement for appropriate behavior. (p. 33)

The intervention program had indeed been successful in suppressing the inappropriate verbalizations and non-compliance, but the DRO was not designed specifically to teach or strengthen appropriate modes of interpersonal interaction or of assuming responsibility. Rather, the woman was reinforced "after periods of remaining quiet." From the description, she appeared to be afraid to verbalize in a normal manner, resorting to "raising her hand and whispering a request." The creation of such "be still, be quiet, be docile" behavioral features could hardly be viewed as acceptable goals of a behavior therapy program (Winett & Winkler, 1972).

Barrett (1977), Jansen (1980), and Touchette (1978) further highlight the unacceptability of behavior therapy programs which emphasize only deceleration or elimination of inappropriate behaviors (e.g., aggression), especially with clinical populations such as the mentally retarded who are characterized by numerous areas of behavioral deficits and deficiencies. Barrett notes that if deceleration programs are:

> Not complemented by contingencies that strengthen adaptive and constructive behaviors, eliminating the behavers' only effective means of manipulating their environments may be not only counterproductive but also antithetical to the goals of behavioral normalization. (p. 179)

Jansen writes:

> It is pointless to try to reduce or eliminate a maladaptive behavior, such as tantrums, without replacing it with an alternative response--if one attempts to reduce or eliminate a retarded client's maladaptive behavior without developing a functional substitute for that behavior, it is likely that the maladaptive behavior will reappear in a very short time. (p. 226)

As a final example, Touchette suggested:

> Drugs, punishment, and restraint may solve the immediate problems of those who must care for the child, but they do not alleviate the problem of the child. The problem is, and will continue to be, behavioral insufficiency. There is a real danger that procedures which suppress undesirable behavior and accomplish nothing else, will delay or prevent any constructive solution to the child's problems. (p. 199)

4. The behavior program initially should use and evaluate the least intrusive or restrictive procedures prior to use of more intrusive ones. If these less intrusive approaches are not used, the program should present a rationale based on assessment data which indicates that specific client characteristics dictate the more intrusive intervention procedure. In illustration, if, in an attempt to suppress aggression toward peers, TO is used instead of a specific social skills training procedure, assessment data should be presented which would justify the use of the intrusive TO procedure with the client. Applying this criterion to the previously mentioned Bostow and Bailey (1969) program would have necessitated an initial or, at minimum, a concomitant approach designed to teach the client to express her wishes and

concerns in a more socially acceptable manner. With this program, the client's inappropriate behavior, rather than being suppressed through punishment, would be replaced by socially appropriate behaviors developed and/or strengthened through systematic social skills training based on positive reinforcement. While possibly requiring a greater investment of staff time initially, such an approach designed to teach replacement prosocial behavior would surely have produced more humane results than those of "sitting quietly and occasionally whispering a request to an attendant." Such a procedure of teaching replacement behaviors also offers greater possibilities for generalization and maintenance of the desired behaviors as such behaviors would be likely to result in naturally occurring social feedback (Marholin, Siegel, & Phillips, 1976).

The behavior therapist should note that the intrusiveness of a deceleration procedure cannot be judged solely in terms of its face characteristics, or in terms of descriptions of a procedure provided by writers who "create" such procedures. In illustration, Pendergrass (1971) used a brief TO procedure in an apparent attempt to reduce the aggressive behavior of a young brain-damaged child. The procedure, which on the surface appears to be only mildly intrusive, produced some totally unacceptable behavioral effects. The therapist observed that, "S gradually developed strong emotional responses of trembling and crouching when E called, 'Don't hit,' and that she consistently wet in the isolation chamber," and "she spent long periods of time lying face down on the floor when not in TO" (p. 79). As a second example, overcorrection has been described as a "mild aversive procedure" (e.g., Foxx & Azrin, 1973; Ollendick & Matson, 1976). However, as emphasized by Axelrod, Brantner, and Meddock (1978), it is sometimes difficult to see how overcorrection procedures could meet any definition of mild punishment. To support this observation, the writers commented:

> The positive practice procedure for a bedwetting incident in a study by Azrin, Sneed, and Foxx (1973) involved awakening the resident, reprimanding him, having him replace the linens on the bed, having him lie down for three minutes, awakening him, and directing him to the toilet. The final three steps were repeated about nine times, with the entire procedure lasting 45-minutes. (p. 386)

Doke and Epstein (1975), in commenting on the aversiveness of another form of overcorrection, that of oral overcorrection, concluded that this procedure was a more extreme form of punishment than some of the alternatives and suggested that it be used only when milder forms of punishment proved ineffective.

To repeat, the intrusiveness of a procedure may be subject-specific and cannot be judged on its face characteristics. As a result, any punishment procedure, however innocent it may appear or be described to be, should: (a) never be used in isolation, (b) be monitored carefully for negative side effects, and (c) be accompanied by an equally as, or more, powerful procedure to develop/strengthen replacement prosocial behaviors (May, Risley, Twardosz, Friedman, Bijou, & Wexler, 1975).

A related professional concern is that many of the procedures used to eliminate aggressive and other disruptive behaviors are potentially degrading and dehumanizing. The following illustrate this potential:

1. "Hassle Sessions" used with a 30 year old profoundly retarded assaultive woman (Ball, Sibbach, Jones, Steele, & Frazier, 1975):

   > At the first appearance of withdrawn and negativistic behavior. . .she wore the [electric shock] jacket and was required to sit on a chair with feet on the floor, head held up and hands resting on her thighs with fingers extended. If she started to rise, the

> experimenter insisted that she sit. If she refused she was pushed back into the chair. (p. 227)

2. "Social Isolation" used with a 23-year-old severely retarded male (Foxx, Foxx, Jones, & Kiely, 1980):

> Whenever Paul became aggressive. . .he was instructed in a neutral tone of voice to go and lie on his bed. If he failed to respond to the instruction, he was immediately escorted to his bed and instructed to lie down. If he still failed to comply, the two attendants manually guided him into a supine position. If he actively resisted, his extremities were held so as to make his resistive movements difficult. . .he was told that because of his aggressive acts, he would be denied all social contact for 24 hours. . .Paul was then instructed to remove his outer clothing (he retained his undergarments and socks) and put on a white hospital gown. . .all of his toys, decorations, record albums, clothing, and so on were removed from his personal living area. Paul was then instructed to stay away from others. (p. 137)

5. The intervention program should use those procedures which offer the most promising long-term benefits. A suppressive procedure such as time out or overcorrection may well result in even rapid deceleration of various excessive behaviors. But unless alternative replacement behaviors are specifically trained and provided systematic reinforcement, the suppressive effects may well dissipate over time, resulting in the reappearance of the inappropriate behavior. In illustration, Matson, Ollendick, and Martin (1979) assessed the maintenance effects of "positive practice overcorrection" used to successfully suppress self-stimulatory behaviors of institutionalized retarded adults. One year follow-up data revealed that for six of the eight subjects, the rate of the treated self-stimulatory behavior approached that originally observed. This finding appears to be the case, rather than the exception, when only deceleration procedures are used in the absence of assessment information which reveals that prosocial behavior is in the client's

repertoire and is likely to gain prominence following suppression of the more predominate inappropriate behavior.

Critique of Current Literature

Using these criteria, the available published behavioral literature describing treatment of aggression (verbal and physical) in the mentally retarded was examined. Only those reports were considered which involved mentally retarded persons who, at the time of initiation of the behavior therapy program, were presenting clinically significant problems of aggression and related disruptive behaviors that, presumably, provided the justification for the intervention efforts. In critiquing each study, the following questions reflecting the above discussed critieria were raised:

1. Was there any indication that the intervention procedures used reflected consideration of behavioral assessment data? If not, was any rationale provided for the selection of the intervention procedure in the absence of such client-specific information?
2. What behavior intervention procedures were used in those programs that did not include client assessment data?
3. Was a treatment procedure used to systematically train or strengthen specific prosocial behaviors to replace the aggressive behavior? If not, was a justification provided for this omission?
4. Was the least intrusive or restrictive procedure used initially? If not, was a rationale provided for use of more intrusive procedures?
5. If potentially intrusive procedures were used, was informed consent obtained?

Results

A total of 38 articles was located which satisfied the selection criterion, vis., (a) mentally retarded clients, (b) who presented significant clinical problems of aggression, and (c) use of behavioral intervention procedures (see Table 1). Results of an analysis of these 38 studies are as follows.

Question 1

Was there any indication that the intervention procedure(s) used reflected consideration of behavioral assessment data?

Findings 1.

Only six studies reported intervention procedures based on hypotheses generated from client assessment data. Only three of these six included procedures designed to reduce the aggressive behaviors and to strengthen prosocial alternative behaviors (Carr, Newsome, & Binkoff, 1980: Harvey et al., 1978; Wiesen & Watson, 1967). Carr et al. presented a detailed functional analysis of the behavior of two retarded children whose aggression appeared to be motivated primarily by escape factors. Harvey et al. developed hunches about the functionality of inappropriate behviors and about environmenal conditions assumed to influence the problems behaviors. These hunches were used as a basis for a multi-component intervention program. Wiesen and Watson hypothesized the inappropriate behavior of their client to be "the effect of an inadvertently established partial reinforcement schedule carried out unwittingly by harried attendant counselors who periodically reinforced Paul with prolonged attention." (p. 50)

The three remaining studies did make minimal use of assessment data, but did not include specific procedures to develop or strengthen replacement behaviors (Foxx et al., 1980; Martin & Foxx, 1973; Webster & Azrin, 1973). Foxx et al. used required relaxation training and 24-hour isolation as procedures for reducing the aggressive outbursts of a severely retarded male. These interventions presumably were based on the hypothesis that the

Table 1

Summary of Therapy Procedures Used in Treatment of Aggression in the Mentally Retarded

Procedure	Reference	Behavioral Assessment
Differential Reinforcement:		
DRO + TO[a]	Sewell at al. (1973)	No
DRO + TO + RC + PAC	Hall et al. (1973)	No
	Repp & Deitz (1974)	No
DRO + OC	Polvinale & Lutzker (1980)	No
DRI + TO	Vukelich & Hake (1971	No
DRI + TO + RC	Perline & Levinski (1968)	No
Self-Management:		
SM + RT + DRO + TO	Harvey et al. (1978)	Yes
Negative Reinforcement:		
release of finger pressure	Mithaug & Hanawalt (1971)	No
removal of demands	Carr et al. (1980)	Yes
Extinction:		
behavior maintained by positive reinforcement	Martin & Foxx (1973)	Yes
Stimulus Change:		
environmental	Boe (1977)	No
	Murphy & Zahm (1978)	No
	Rago et al. (1978)	No
Presentation of aversive consequences:		
aversive tickling	Greene & Hoats (1971)	No
electric shock	Ball et al. (1975)	No
	Brandsma & Stein (1973)	No
electric shock + DRO	Birnbrauer (1968)	No
verbal warning & suspension	Schutz et al. (1979)	No
water squirt	Gross et al. (1982)	No

Table 1--continued

Procedure	Reference	Behavioral Assessment
Timeout:		
TO	Calhoun & Matherne (1975)	No
	Clark et al. (1973)	No
	Hamilton et al. (1967)	No
	Pendergrass (1971)	No
	Webster & Azrin (1973)	Yes
	White et al. (1972)	No
TO + DRO	Bostow & Bailey (1969)	No
TO + DRO + RC	Burchard & Barrera (1972)	No
TO + DRO + RC + OC	Peniston (1975)	No
TO + DRO + PR + OC	Foxx et al. (1980)	Yes
TO + DRI	Wieson & Watson (1967)	Yes
TO ribbon	Foxx & Shapiro (1978)	No
Response Cost:		
RC	Axelrod (1973)	No
	Greene & Pratt (1972)	No
	Sulzbacher & Houser (1968)	No
RC + DRI + TO	Burchard (1967)	No
Overcorrection:		
OC	Foxx & Azrin (1972)	No
	Shapiro (1979)	No
OC + DRO	Davidson-Gooch (1980)	No

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[a] The abbreviations refer to the following techniques: DRO--differential reinforcement of other behavior; TO--time out from positive reinforcement; RC--response cost; PAC--presentation of aversive consequences; OC--overcorrection; DRI--differential reinforcement of incompatible behavior; SM--self-management; RT--relaxation training

aggressive behaviors were maintained by contingent consequences, although these were not identified specifically.

Martin and Foxx evaluated the credibility of their hypothesis that high-rate aggressive behavior in their client was related to the social reinforcement associated with physical attacks on others. An extinction procedure was used in a therapy setting to test this hypothesis, but no attempt was made by the therapists to use such information in a program for developing alternative prosocial behaviors. In fact, after successfully supporting their functionality hunch, these therapists concluded, "It is not feasible, in cases similar to Gail, to arrange for the ward staff to withdraw social reinforcement for aggressive behavior. This treatment is much too dangerous for individuals functioning as victims because of the passive role they must assume during attacks." (p. 165)

Finally, Webster and Azrin observed that states of agitation in their clients frequently preceded aggressive/disruptive behaviors. These therapists used this information to justify selection of an overcorrection procedure (i.e., required relaxation consisting of putting the client in bed for two hours) to eliminate the stimulus conditions (agitated behaviors) occurring early in the aggressive behavior chain. It should be noted, however, that these client assessment data were not translated into procedures to change the conditions which resulted in the agitation or to teach the clients to deal with states of agitation in ways other than through aggression.

Therapists, in six other reports, while commenting on the possible functionality of the client's aggressive behaviors, neither translated these speculations into intervention procedures nor provided justification for ignoring such pertinent client information (Ball et al., 1975; Birnbrauer, 1968; Brandsma & Stein, 1973; Clark, Rowbury, Baer, & Baer, 1973; Greene & Hoats, 1971; Vukelich & Hake, 1971). The remaining 26 studies made no mention of behavioral assessment data in devising the intervention procedures used or provided any rationale or justification for this omission.

Question 2

In the reports of therapy programs making no use of client assessment data, what behavioral intervention procedures were used?

Findings 2.

Table 1 provides a summary of the therapy procedures used in the studies.

Question 3

Did the behavior therapy programs include procedures designed to strengthen specific prosocial replacement (alternative) behaviors?

Findings 3.

(a) In addition to the previously mentioned reports of Harvey et al. (1978) and Wiesen and Watson (1967), only four other studies included procedures designed to strengthen specific prosocial replacement behaviors (Carr et al., 1980; Murphy & Zahm, 1978; Perline & Levinsky, 1968; Vukelich & Hake, 1971).

(b) Thirteen studies, while using behavior suppression procedures as the major therapy approach, provided differential reinforcement for various desired behaviors (Axelrod, 1973; Birnbrauer, 1968; Bostow & Bailey, 1969; Burchard, 1967; Burchard & Barrera, 1972; Davison-Gooch, 1980; Foxx et al., 1980; Foxx & Shapiro, 1978; Hall, Price, Shinedling, Peizer, & Massey, 1973; Peniston, 1975; Polvinale & Lutzker, 1980; Repp & Deitz, 1974; Sewell, McCoy, & Sewell, 1973).

However, reinforcement was not provided for specific alternative replacement behaviors.

(c) Shapiro (1979) used positive practice overcorrection in "teaching" a replacement behavior, but, in keeping with the overcorrection approach, was careful to avoid providing reinforcement for this behavior.

(d) The remaining 18 studies used only behavior suppression or other deceleration procedures and did not include any approaches designed to develop or strengthen alternative behaviors. No rationale was provided in any of the studies for this omission.

Question 4

In view of the preponderance of articles using behavior suppression intervention procedures, were data presented which indicated that less intrusive procedures had been found ineffectual?

Findings 4

Twenty-six of the 38 studies reviewed used behavior suppression (punishment) procedures in isolation or as the major intervention tactic. No information was included in any of these 26 studies which demonstrated the lack of effectiveness of less intrusive procedures. In fact, only eight of these reports made mention of the apparent ineffectiveness of other previously attempted proceudres (Ball et al., 1975; Brandsma & Stein, 1973; Burchard, 1967; Davidson-Gooch, 1980; Foxx et al., 1980; Gross, Berler, & Drabman, 1982; Mithaug & Hanawalt, 1977; Shapiro, 1979).

Question 5

Was informed consent obtained prior to use of potentially intrusive procedures?

Findings 5

Informed consent and/or approval of a Human Rights Committee were reported in only three of the 38 articles: Ball et al. (1975) for use of electric shock; Mithaug and Hanawalt (1977) for use of finger pressure applied to the biceps of the client; and Repp and Deitz (1974) for use of a DRO in combination with TO, RC, and presentation of aversive consequences. Examples of intrusive procedures used in the absence of informed consent (i.e., not mentioned in article) included: (a) removing a physically handicapped person from her wheelchair and placing her on the floor (Bostow & Bailey, 1969); (b) manipulating varying schedules of TO for extended periods of time in the absence of teaching prosocial replacement behaviors (Calhoun & Matherne, 1975; Clark et al., 1973); (c) evaluating the credibility of an experimental hypothesis concerning the functionality of behavior for 165 15-minute sessions without any effort to replace the extinguished behavior with alternative prosocial behavior or to insure that the extinction extended beyond the therapy situation (Martin & Foxx, 1973); (d) aversive tickling for 29 weeks without teaching alternative prosocial behaviors (Greene & Hoats, 1971); and (e) the use of TO in isolation with a 5-year-old child who gradually developed strong negative emotional responses to the "therapy" procedure (Pendergrass, 1971).

Summary of Findings

Of the 38 studies reviewed, only six made even minimal use of client assessment data. No justification was given in any of the remaining 32 studies for this omission. A majority of the studies which did not use assessment data used intrusive behavior suppression procedures in isolation or as the primary intervention approach. Although mentioned in eight reports, none presented data which demonstrated that less intrusive procedures had been found ineffectual. Only three even obtained informed consent or approval for use of the potentially intrusive procedures. Finally, only six therapy programs included procedures to strengthen specific prosocial replacement behaviors.

Discussion and Conclusions

The findings reveal a preintervention bias concerning the need for behavioral assessment data. Although not mentioned specifically by the writers, the following possible sources of bias were detected in the publications reviewed.

1. Treatment bias: The client and the problem were incidental to the therapist's interest in investigating the efficacy of some specific predetermined procedure or parameter, e.g., relative efficacy of various schedules of TO in suppressing excessive behavior. The fact that the clients included in the investigation were presenting clinically significant problems requiring client-specific behavior therapy programs and/or that other procedures might have offered better outcome possibilities would be viewed as irrelevant in reports reflecting this bias. Further, with such a bias, client data relative to (a) the possible functionality of the aggressive behavior, (b) possible stimulus control variables, and (c) other client characteristics that might contribute to or interact with the treatment effects would be viewed as irrelevant as these factors were not being investigated.

2. Behavior problem-subject-treatment bias: Assessment data concerning client and/or environmental characteristics were not viewed as necessary due to the preintervention bias that aggressive behavior in the mentally retarded is best treated by a specific procedure, e.g., overcorrection.

3. Subject bias: Due to the client's mental retardation, assessment data would either be difficult to obtain or would not be useful in selecting an intervention procedure.

4. Feasibility bias: Attempts at selecting intervention procedures on the basis of client assessment data would not be feasible or practical. In illustration, the therapist would reason, "The retarded learn so slowly and reveal so many deficit skills, a social skills training program for teaching prosocial behavior to replace aggressive ones would not be feasible. The cost in terms of time, staff, or effort would be excessive."

To reiterate, all clients in every report were presenting clinically significant difficulties. In our opinion, the selection for such clients of intervention procedures in the absence of client assessment data, especially those procedures of a potentially intrusive nature, violates even the most basic and elementary features of behavior therapy practice. As noted earlier, there does not appear to be data which would support "automatic application" preintervention biases.

Even in reports which indicated that previously used approaches had not produced desired treatment effects, the approaches mentioned represented inadequate conceptualization of the client's problem. As an example, Shapiro (1979), supported his selection of an overcorrection procedure in treating a 5 1/2 year old mentally retarded child's physical aggression and excessive destruction of books and classroom materials with the comment:

> Previous unsuccessful attempts to alter these behaviors included mild punishment (making her stand in the corner immediately after ripping books) and redirection (getting her interested in an alternate activity). (p. 132)

Such procedures could hardly be viewed as acceptable behavior therapy approaches. The more obvious procedure of shaping appropriate handling of classroom materials by means of positive reinforcement was not mentioned, apparently due to a preintervention bias favoring a specific therapy procedure, namely overcorrection.

A number of studies used a combination of DRO and TO. The assumption in using the DRO procedure (usually the delivery of a reinforcer when the particular aggressive response does not occur for a specified period of time) is that a variety of behaviors would be shaped or strengthened to such an extent that any one or combination will replace the suppressed aggressive behavior (Repp & Deitz, 1974, 1979; Reynolds, 1961). This appears to be a hit-or-miss procedure, especially in the absence of preintervention client assessment data. Without such data, the therapist has no knowledge of the presence and strengths of other behaviors which may be in the client's repertoire and which may be expected to occur following the minimal reinforcement for any specific behavior provided in a DRO procedure. In view of the general behavioral insufficiency of the mentally retarded, and the large number of reinforced trials required for the development of predominant behavior patterns, an unspecified DRO would appear to be an inappropriate procedure unless based on pertinent client assessment data. A more acceptable procedure would be that of differential reinforcement for topographically incompatible responding (DRI), as was done in the Harvey et al. (1978) and the Vukelich and Hake (1971) programs.

In a number of reports, the basis for selection of the interventtion procedure was "for research purposes." It should be noted, however, that clients in none of the studies were paid participants, had volunteered for the research, or were otherwise compensated as is typically done for the "college sophomore" who participates voluntarily to gain course points or other renumeration. All were mentally retarded individuals, mostly severely and profoundly impaired, who were presenting severe problems in need of immediate effective treatment. None had given informed consent. Even if the client's guardian had provided informed consent (mentioned in only two of the studies), the clinician (researcher) could not have indicated to the guardian that various of the suppressive procedures used in fact offered the best promise of resolution of the client's problems. In our opinion, regardless of its effectiveness, suppression of excessive behavior hardly represents a satisfactory resolution of a client's problems. As noted earlier, only a small minority of the studies utilized client behavioral assessment data and thus had no tenable position for the intervention approaches selected.

It is also apparent that clients were used in a number of studies to test an experimental question quite unrelated to the client's problem. Studies by Clark et al. (1973) and Calhoun and Matherne (1975) illustrate this observation. Clark et al., in studying the suppressive effects of TO in continuous and intermittent schedules, used an 8-year-old retarded girl described as displaying "a large number of behaviors that were considered severely disruptive and/or dangerous to the other preschool children" (p. 445). After demonstrating that TO applied contingently to each occurrence of a specified behavior could produce suppression of the target behaviors, the therapists returned to less effective treatment conditions and permitted the "highly disruptive and dangerous behaviors" to reappear. This was done to permit investigation of research questions unrelated to the child's problem or its resolution. This research was continued for 80 days beyond the initial 27 days involved in demonstrating that TO could result in a near total suppression of the clinically significant problem behaviors. During those 80 days, the disruptive and/or dangerous behaviors were increased and decreased to satisfy the experimental design requirements of the research. In fact, at the termination of the study, the problem behaviors were still occurring at an unacceptable rate, even though the investigators had previously demonstrated an efficient means of suppressing the behaviors.

A similar tactic was used by Calhoun and Matherne (1975) in evaluating the effects of varying schedules of TO on suppressing the aggressive behaviors of a 7-year-old moderately retarded child considered "an extreme behavior problem." Even though the investigators presented data from previous studies that supported the relative efficacy of a continuous TO schedule, this schedule was not used until the 48th treatment session prior to which other less effective schedules had been investigated.

In our opinion, such research activities with real clients with real problems in the absence of behavioral assessment data and without primary focus on effective resolution of the client's problems is inconsistent from professional practice and ethical positions. We agree with Repp and Deitz (1978) that "reducing responding for research purposes" is a complicated issue and must be addressed both by researchers and by professional journals which report the results of such research.

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AN ECOLOGICAL APPROACH TO ASSESSING VOCATIONAL AND COMMUNITY LIVING SKILLS

Orv C. Karan and Robert L. Schalock

"Independence in the sphere of working and
independence in the sphere of living are
inseparable parts of complete
habilitation" (Boyan, 1978).

This article focuses on assessing vocational and community living skills among developmentally handicapped adults. It asks a seminal question of special educators and (re)habilitation specialists: "What are the critical person and environmental characteristics associated with increased independence and productivity?" Once these characteristics are determined, the mismatch between persons and their environments can be reduced.

It is important at the outset to stress this article's focus and to indicate what is and is not covered, since the area of assessment could well consume volumes. The major focus is on assessing adaptive behaviors related to increased productivity, independence and social acceptance. Neither early intervention nor traditional educational assessment is discussed. If interested, the reader can find a description and evaluation of these in Gray, Klaus and Ramsey (1981); Jenkins, Stephens and Sternberg (1980); Lazar, Snipper, Royce and Darlington (1981); Palmer and Andersen (1981); and Seitz, Apfel and Rosenbaum (1981).

A second focus is on adults rather than youth. This orientation represents the authors' observation that although developmentally handicapped individuals grow into adulthood like everyone else, there are many more programs and programmatic materials available for youth than for adults.

This focus is not to imply that the adaptive behaviors discussed in the paper are inappropriate for youth; rather the intent is to stress the need for assessment and programmatic services that are both age appropriate and functional.

Finally, this article focuses primarily on assessment rather than remediation. This separation is necessary for page constraints only since the authors maintain that assessment and remediation are inseparable and interactive components to habilitation. The interested reader is referred to Karan (1976, 1981), Schalock (1981, 1982), and Schalock and Karan (1979) for examples of integrating assessment and remediation.

This article is organized into four sections. First, a number of recent trends regarding the developmentally disabled are summarized. These trends have forced us to rethink the historical approach taken to client assessment. Second, a vocational model is outlined that focuses on integrating persons with vocational training-placement environments and interfacing vocational habilitation agencies with the private sector. Third, a community living skills assessment model is outlined that focuses both on integrating persons with living-training environments and developing a continuum of less restrictive living-training facilities whose characteristics and requirements are assessed. Once assessed, the requirements can be incorporated into a Individual Transition Plan (ITP) whose objectives and intervention techniques relate to skill acquisition, prosthetic procurement and/or environmental modification. The conclusion includes a discussion of the competencies required to assess person and environmental characteristics and ways to incorporate these into a functional ITP that integrates person skills, environmental requirements and appropriate habilitation programming.

Recent Trends Affecting the Moderately/Severely Handicapped

Focus on Adaptive Behavior

Adaptive behavior is the effectiveness or degree to which an individual meets the standards of personal independence and social responsibility expected of his age and cultural group (Grossman, 1977). The concept of adaptive behavior has become increasingly important in developmental disabilities for three primary reasons. First, it reflects the functional definition of developmental disabilities that is defined in terms of "inabilities or limitations in performing roles and tasks expected of an individual within a given environment" (P.L. 95-602). Second, it is an integral part of the official definition of mental retardation that refers to "significantly subaverage general intellectual functioning existing concurrently with deficits in adapative behavior manifested during the developmental period" (Grossman, 1977). Third, adaptive behavior has been proposed as the basis for individual program planning and as an outcome measure for habilitative efforts (Bogen and Aanes, 1975; Smith and Polloway, 1979; Zigler and Trickett, 1978).

Operationally adaptive behavior includes a number of skills encompassing those related to independent functioning, cognition, social behavior, sensory-motor development and communication. Although adaptive behavior is a complex and everchanging attribute, it can be assessed, quantified, and scaled into levels of impairment (Note 1).

Functionality of Development and Intelligence

Developmental disabilities are now defined functionally rather than categorically. This shift is seen in Table 1 which compares Public Law (P.L.) 94-103 with P.L. 95-602. The pros and cons of functional versus categorical definitions can be debated, however, the present conceptions clearly emphasize a person's functioning and functional limitations.

Conceptions regarding intelligence are also changing (Haywood & Wachs, 1981, Kamhi, 1981). People are increasingly becoming aware that intelligence is a multidimensional and multidetermined trait that can be viewed from a number of viewpoints including psychometric, developmental and motivational. The interested reader is referred to Haywood and Wachs (1981) for an excellent review of these different conceptions.

Two significant implications result from the changing conception of intelligence. First, contrary to popular usage and practice, intelligence is not an unidimentional, global entity. Rather, "intelligence consists of specific abilities, learning processes, or cognitive functions that may be organized hierarchically in a single-stage, multidimensional space, or in a structure integrating cognitive and motivational aspects" (Haywood and Wachs, 1981). Thus, "intellective," multidimensional components exist and may underlie different levels of adaptive behavior. A second implication is that there is evidence that the nature of intelligence changes as individuals develop. Therefore, habilitative efforts should be directed towards changing environments to provide appropriate experiences, structuring situations to maximize learning, and focusing staff and client attitudes toward learning and functioning potential (Haywood & Wachs, 1981).

TABLE 1
COMPARATIVE DEFINTIONS OF DEVELOPMENTAL DISABILITIES

P.L. 94-103 Sec. 103(7)	P.L. 95-602 Sec. 503b(7)
The term "developmental disability: means a disability of a person which--	The term "developmental disability" means a severe, chronic disability of a person which--
(A)(i) is attributable to mental retardation, cerebral palsy, epilepsy, or autism; (ii) is attributable to any other condition of a person found to be closely related to mental retardation because such condition results in similar impairment of general intellectual functioning or adaptive behavior to that of mentally retarded persons or requires treatment and services similar to those required for such persons: or (iii) is attributable to dyslexia resulting from a disability described in clause (i) and (ii) of this subparagraph;	(A) is attributable to a mental or physical impairment or combination of mental and physical impairments;
(B) originates before such person attains age 18;	(B) is manifested before the person attains age 22;
(C) has continued or can be expected to continue indefinitely; and	(C) is likely to continue indefinitely;
(D) constitutes a substantial handicap to such person's ability to function normally in society.	(D) results in substantial functional limitations in three or more of the following areas of major life activity: (i) self-care, (ii) receptive and expressive language, (iii) learning, (iv) mobility, (v) self-direction, (vi) capacity for indepenent living, and (vii) economic self-sufficiency; and
	(E) reflects the person's need for a combination and sequence of special, interdisciplinary, or generic care, treatment, or other services which are of lifelong or extended duration and are individually planned and coordinated.

Person-Environments Perspective

Three major concepts have historically dominated services to the developmentally disabled. The first emphasized security and good health through adequate residential programming, nutrition and physical care. The second emphasized the development of cognitive and social skills through education and training programs. The third, or social ecology approach, recognizes that a person is part of an environment that significantly affects one's behavior (Berkson & Romer, 1981).

This ecological or "person-environment perspective" represents a new approach to the developmentally disabled person including:

- Individuals cannot be separated from their environments (Stucky & Newbrough, 1981).
- Both persons and their environments can be assessed (Dokecki, 1977; Hobbs, 1975; Moos, 1974, a,b; Newbrough, 1977).
- Behavioral change and growth potential is possible (Feurenstein, Rand, Hoffman, & Miller, 1980; Haywood, 1977; Schalock and Karan, 1979).
- Intervention focuses on caregivers and settings as much as on the person (Karan, 1981; Stuckey & Newbrough, 1981).

The unique qualities of the person and the environment can be matched, promoting a person-environment congruence that optimizes functional level (Richardson, 1981; Stuckey & Newbrough, 1981; Sutton, Michael & Wanner, 1981).

Developing Social-Interpersonal Skills

The role of appropriate social behavior in deinstitutionalization and community placement efforts has been well documented. For example, results of several community adjustment studies have reported that personality and social behaviors are among the most important variables affecting successful community placement (Eyman & Call, 1977; Callay et al, 1978; Nihira & Nihira, 1975; Reiter & Levi, 1980; Schalock, Harper & Genung, 1981). Research has also demonstrated the importance of appropriate social-interpersonal skills in successful job and living placements (Baller, Charles & Miller, 1967; Foss & Peterson, 1981; Kolstoe, 1961; Rosen, Clark & Kivitz, 1977; Schalock & Harper, 1978; Wehman, 1981). Social-interpersonal competence and work success are also reflected in the content of vocational assessment instruments. Walls and Werner (1977) for example identify twenty-four relevant behavior checklists each containing from one to fifty-six items related to social-interpersonal behavioral skills.

Inadequate social and interpersonal skills are among the most important factors preventing the full integration of the developmentally disabled person into society's mainstream. The development of these skills, however, cannot be separated from the person's experiences. For example, Baroff (1974) suggests that all persons require certain kinds of psychological experiences that facilitate personality development. The primary ones include: (1) structure - that is reflective of the ability to predict events and to possess a sense of familarity with one's life; (2) self-esteem - which is a sense of usefulness and adequacy about oneself and directly related to feelings of intimacy, success and autonomy; and (3) self-expression - in the form of activities and pursuits. With these experiences in mind, social-interpersonal skill assessment should focus on what the environment does to the person, what it tells the person about himself/herself, and which social-interpersonal skills are necessary to adapt successfully to that environment.

It is also important to realize that different environments require different social-interpersonal skills. For example, in a recent study of the social-interpersonal skills relevant to job success among mentally retarded adults, it was found that sheltered workshop personnel in eleven western states reported the following eight skills most relevant to the job tenure: (1) following supervisor instructions; (2) responding appropriately to supervisor criticism or correction; (3) refraining from exhibiting bizarre or irritating behavior; (4) working independently of direct supervision; (5) maintaining an appropriate appearance; (6) interacting appropriately with co-workers while on the job; (7) controlling aggressive behavior; and (8) requesting assistance as needed (Foss & Peterson, 1981). Analogously, social-interpersonal skills related to community living success include appropriate emotional expression, group participation, self-control, social etiquette (including self-help skills), motivation to initiate and complete reasonable activities, and appropriate use of leisure time (Schalock, Harper & Genung, 1981; Schalock, Harper & Carver, 1981).

The four recent trends summarized above including, adaptive behavior; the functionality of development and intelligence; the person-environment perspective; and developing social-interpersonal skills, have forced a re-evaluation of how we assess developmentally disabled persons (Note 2). How the re-evaluation has occurred in reference to prevocational and vocational assessment is incorporated into the vocational assessment model discussed in the following section.

Vocational Assessment Model

Traditionally the purpose of vocational assessment for the mentally retarded has been to specifically identify what an individual is capable of doing and then identifying with equal specificity a job that matches the person's capabilities (Peterson & Jones, 1964). This approach to evaluation attempts to make predictions and considerable research has been devoted to developing vocational assessment instruments which can measure those employee skills thought relevant to employment success (Karan, 1976; Mayeda, Pelzer & Magni, 1979; & Mithaug, 1981).

In spite of the relatively low predictive validity of such instruments (Pelzer & Mayeda, 1980) and a growing feeling that the currently prevalent assessment techniques tend to underestimate abilities and emphasize limitations (Bates, 1981), vocational assessment procedures originally developed for less handicapped individuals are still being applied invalidly to the more severely handicapped (Karan, 1977; Schalock & Karan, 1979).

Recently, the authors argued that vocational assessment should shift from a prediction orientation to one that fosters the remediation of skill deficiencies and thereby reflects the development of functional behaviors and skills (Schalock & Karan, 1979). From this perspective assessment is a continuing process which is an integral, rather than separate, part of training. Further, the focus of the assessment is not just on the person but also on the most important parameters of the person's home, social, and potential work environments (Wehman, 1981). The value of such a focus is that it identifies those behaviors each person should possess in order to function as productively and independently as possible in vocationally integrated adult community settings (Brown, Nietupski, and Hamre-Nietupski, 1977).

The framework for this approach to vocational assessment came from the work of Crosson (1969) who suggested that rather than finding work to match the abilities of those who could be productive the emphasis should be placed on finding ways to train retarded persons to perform available work. Unfortunately, a vocational assessment instrument which has been generally validated for this use with severely handicapped persons is currently unavailable (Belmore & Brown, 1978). But, this in no way has hampered the work of a small but productive group of vocational habilitation researchers such as Lou Brown, Dennis Mithaug, Frank Rusch, Paul Wehman and others. Their work suggests no less than a need to radically alter both public school and sheltered workshop vocational curricula and activities as they are now practiced. For unless the contents of a curriculum possess ecological validity (Brooks & Baumeister, 1977) the training activities could be misdirected either by focusing upon noncritical areas or by not implementing essential activities (Mithaug & Haring, 1977). Those involved in developing the employment potential of severely handicapped persons must know as early as possible what vocational goals are realistic for individual trainees. These goals by necessity involve both the potential skill development of the person and the opportunities available in the community for using these skills (Revell & Wehman, 1978).

By asking the question, " Does s/he really need to learn this skill?" and basing the answer on a thorough review of skills actually needed in community nonsheltered employment settings it may be possible to reduce the number of training situations within which participants remain indefinitely while trying to learn unneeded prerequisite skills. This has been referred to as the "permanent program trap" (Karan and Schalock, 1983) and refers to the all too frequent practice by which trainees may spend a lifetime attempting to acquire irrelevant skills. When they do not their lack of progress is often viewed as their failure rather than due to misguided programming (Mithaug, 1981; Switzky, Rotatori, Miller, & Freagon, 1979).

The remainder of this section focuses on the critical elements of a contemporary vocational assessment model. Several aspects of this model are contained in the job placement models described by others (Mithaug, 1981; Rusch & Mithaug, 1980; Wehman, 1981) and the interested reader is encouraged to consult these references for more details. A significant addition to this model is the section on risk factors. On the basis of our own research and that of others we believe these must be thoroughly considered both at the time of initial assessment and throughout the entire job placement process because these are the factors which serve as obstacles to successful employment.

Where to Begin

A reasonable first step is to gather data on the trainee's medical, educational, psychological, social, and vocational history (Rusch & Mithaug, 1980). This information should be relatively current since its primary value is to give a general picture of the person. For example, knowledge of the current medications taken, any limitations relative to the person's stamina and/or strength; experiences in previous vocational settings; etc., all provide useful information for guiding the eventual placement.

Labor Market Survey

The next step in the vocational assessment process is a labor market survey for the specific community within which employment opportunities will be sought (Karan, Sink, & Schalock, 1981; Mithaug, 1981). This information can either be of a general nature for program planning purposes such as defining job trends or the types of jobs that seem to be more readily available within a particular community (Decker & Vanderwerf, 1981), or it may be for identifying existing job outlets for both specific placement and/or training opportunities (Rusch & Mithaug, 1980). Therefore, the level of specificity needed for conducting a labor market survey will vary. It may include the use of general resources such as the Dictionary of Occupational Titles (U.S. Department of Labor, 1977) or the Guide to Jobs for the Mentally Retarded (Peterson & Jones, 1964).

Or, it may include some of the more community specific methods for conducting a job market survey such as reviews of help wanted ads, telephone surveys, questionnaires, professional referrals, personal contacts, and mailed surveys (Rusch & Mithaug, 1981 Wehman, 1981). Other resources include the State Employment Service, the Chamber of Commerce, the city assessor, the local rehabilitation agency, voluntary agencies, professional associations, unions, political parties, and magazines (Mithaug, 1981).

Obviously, if the job market survey is to be used to guide an individual's placement the greater is the need for specificity in identifying jobs that actually exist.

Job Analysis

Once potential jobs have been identified a comprehensive job analysis must be conducted to include a consideration of personal, social, and supportive skills as well as the actual job skill requirements that are important to employment success (Belmore & Brown, 1978; Schalock & Harper, 1978).

Direct observation of the work site to identify the skills and behaviors expected on the job is a necessary part of this process. Several writers (Rusch & Mithaug, 1980; Wehman, 1981) also stress the importance of relying on the verbal reports of potential employers, job supervisors, and employees to identify entry level skills that will facilitate the trainee's adaptation and integration into that placement setting. This process of social validation helps to ascertain the acceptable standards within the job and/or industry into which a person may be placed. From this perspective the training objectives are established only to the extent that they identify necessary skill development as this relates to successful completion of a job in a given environment (Karan, 1981; Wehman, 1981).

In conducting a comprehensive job analysis it is also necessary to consider any special conditions which occur (Bates, 1981), and for this reason several days of actual on-the-job observations are generally recommended (Rusch and Mithaug, 1981). As a general rule of thumb, the degree of precision required in conducting a job analysis for developmentally handicapped persons is greater than the degree of precision and comprehensiveness required when conducting a job analysis for those who are less handicapped or nonhandicapped (Belmore & Brown, 1978).

Obviously, a job consists of much more than simply work or workers within a specific setting doing a given task or set of tasks. Recognizing this, Mithaug (1981) recommends identifying information about the nature of the job such as: (1) its main functions; (2) its organizational climate; (3) its physical characteristics; (4) its psychological and social considerations; (5) its conditions affecting the required work; and (6) its practices affecting the makeup of its work force.

A potentially valuable tool which may be of considerable assistance in assessing some of these characteristics in a particular work setting is the Work Environment Scale (Moos & Insel, 1974). There are two versions of this Scale and both result in a work group profile along three dimensions, namely a relationship dimension, a personal growth dimension, and a systems maintenance and change dimension. The relationship dimension contains three subscales including involvement (the extent to which workers are concerned and commited to their jobs), peer cohesion (the extent to which workers are friendly and supportive to each other); and staff support (the extent to which management is supportive of workers and encourage workers to be supportive of each other). The personal growth dimension includes subscales of autonomy (the extent to which workers are encouraged to be self-sufficient to make their own decisions) and task orientation (the extent to which the climate emphasizes good planning efficiency and encourages workers to "get the job done"). Finally, the systems maintenance and change dimension contains five subscales consisting of work pressure (the extent to which the press of the work dominates the job milieu); clarity (the extent to which workers know what to expect in their daily routine); control (the extent to which management uses rules and pressures to keep workers under control); innovation (the extent to which variety, change, and new approaches are emphasized in the work environment); and physical comfort (the extent to which the physical surroundings lead to a pleasant work environment).

The Environment's Modifiability

As nonsheltered competitive employment becomes more of a reality for more developmentally handicapped persons the need for practical and inexpensive modification of the job sites and tasks will become of greater importance particularly for those individuals with serious physical limitations. It is in this respect that the technology and knowledge from rehabilitation engineering can be put to good use. Through creative, yet practical, rehabilitation engineering approaches it is not unrealistic to minimize the list of restrictions which limit the vocational choices available to developmentally handicapped persons. For this reason as an integral part of vocational assessment the following list of questions should be asked during the job analysis (Bates, 1981; Brolin & Webster, 1978):

a. can changes be made in the job which will make it more accessible to the worker?

b. can adjustments be made in the seating, lighting, or work station which will allow the worker to increase productivity?

c. can the job be redesigned, restructured, or broken down into smaller units to meet the individual's capabilities?

d. if the individual cannot do the job as is will s/he be able to do it with other tools or machinery than that which is available and/or can the equipment be re-engineered?

e. what prosthetic devices can be used to help the individual accomplish the task? and

f. is it realistic to expect the potential employer to make accommodations for modification?

Individual Assessment/Remediation

Once the requisites for entrance into a particular job or class of jobs has been ascertained the individual's skills and behaviors in relation to these requisites can be assessed for the purpose of identifying those most in need of training and/or modification.

Although assessing and teaching handicapped individuals skills in the environment in which these will be performed is an optimal approach (Clarke, Greenwood, Abramowitz, & Bellamy, 1980) there will usually be, at any moment in time, fewer nonsheltered employment openings than there are nonsheltered employment needs. For this reason a continuum of employment alternatives must be available (Karan, 1977; Wehman, 1981). At present, there are four major vocational program alternatives available to mentally retarded persons. These are: (1) the preworkshop placement; (2) the workshop placement; (3) the postworkshop placement, and (4) competitive placement (Rusch & Mithaug, 1980).

Ideally these should be logically linked in such a way that the behavioral requisites identified for the competitive placement alternatives provide a functional basis for defining curriculum in each of the preceding alternatives. This can be further supplemented by whatever other entry level information is already available. For example, Karan (1981) has identified behaviors considered very important for entry into preworkshop settings and Mithaug, Mar, and Stuart (1978) have identified entry level skills required for sheltered workshop placement.

Not all trainees may be able to progress through the entire continuum but they will at least be exposed to assessment and training experiences which are directly relevant to the vocational environment which exists in their community. However, even under these circumstances, realistic limitations in staff, time, opportunities, and resources will necessitate a prioritization of those skills which will receive attention.

Although each vocational program must make these decisions on an individualized basis, the following brief list of suggestions may prove helpful in selecting a particular skill or set of skills upon which to concentrate assessment/remediation efforts: (1) assess/train for vocations that exist within the community (Rusch & Mithaug, 1981; (2) the skills selected for assessment/remediation should be those that the person will be asked to consistently perform in his/her work environment (Wehman, 1981); (3) only select the skill areas that are minimumally essential for satisfactory work performance on a particular job (Belmore & Brown, 1978; Karan, 1981); (4) because of the need to assess/train skills which can be immediately functional avoid placing trainees in programs that (a) do not require the use of newly acquired skills, (b) provide few opportunities for further skill development, and (c) require more abilities and behaviors than can be acquired in the alloted time (Mithaug, 1981); (5) instead of learning many skills which may appear useful the trainee should experience a variety of activities that have immediate, long term benefits (Rusch & Mithaug, 1980); (6) the normative range of behavior as established by the job analysis should be used as the standard for evaluating the success of training efforts (Wehman, 1981); and (7) the more competencies the person has and the greater the time for instruction the higher the placement expectation should be (Mithaug, 1981).

Risk Factors

Clearly there are important factors other than job ability which strongly determine whether or not an individual will obtain employment or remain employed. Successful and durable performance on a job is just as much a function of many of these other factors as it is a function of the ability to perform the specific job tasks (Belmore and Brown, 1978). Perhaps because contemporary vocational evaluation procedures are still evolving and the number of vocational programs using these procedures is limited, there has not been much effort directed at incorporating some of these additional critical factors into a total vocational assessment plan. For example, Wehman (1981) was surprised to find that the role of real and surrogate parents in the vocational habilitation of developmentally handicapped persons has received little attention in the professional literature.

The purpose of this portion of the model is to identify, from the data which are available and from the authors' own clinical experiences, those factors which have contributed to individual failures in vocational placement.

Ideally many of these factors could be identified early during the initial assessment particularly when these are behavior patterns which have a history of occurrence across settings. Early identification may also help in making administrative decisions relative to the amount of staff time, levels of expertise, and other resources which will be needed to facilitate vocational success. For example, if the person's family is opposed to non-sheltered employment a considerable time investment will be required in attempting to develop the support, earn the trust, and demonstrate the credibility needed to counteract those attitudes and beliefs which are in direct opposition to the person's vocational independence. This, of course, will not insure that their cooperation will be obtained. Yet, ignoring this as if it does not exist practically guarantees problems that might otherwise have been minimized or even avoided.

Often, however, it will not be possible to identify these risk factors ahead of time since in some cases their occurrence may be specific to a particular setting while in other cases the standards of a setting dictate levels of acceptability and deviation which make otherwise unacceptable behavior patterns quite acceptable and visa versa.

Since not all factors can be identified early this only underscores the importance of vocational assessment as a continuing activity occurring throughout the entire vocational placement and follow up process. However, once these factors are identified they, in most cases, must become priority targets for change since they have been shown to be the factors associated with vocational failure and their continued occurrences serve as obstacles to the person's vocational normalization (Bernstein and Karan, 1979). Table 1 lists the risk factors associated with vocational failure in competitive employment which have been identified in the contemporary literature.

TABLE 2

RISK FACTORS ASSOCIATED WITH FAILURE IN COMPETITIVE EMPLOYMENT

Maladaptive behavior(s) including non-compliants,off-task, bizarre and/or aggressive, stereotypic, self-destructive, etc.	Clarke, Greenwood, Abramowitz, and Bellamy, 1980 Foss and Peterson, 1981 Kochany and Keller, 1981
Too dependent on direct supervision	Foss and Peterson, 1981 Schalock and Harper, 1981 Wehman, 1981
Interacting inappropriately with supervisor(s) and/or co-worker(s)	Foss and Peterson, 1981 Wehman, 1981
Excessive tardiness	Brickey and Campbell, 1981 Kochany and Keller, 1981
Inadequate attendance	Kochany and Keller, 1981
Insufficient speed and/or accuracy	Brickey and Campbell, 1981 Kochany and Keller, 1981 Schalock and Harper, 1978 Sowers, Thompson, and Connis, 1979
Failure to notify employer when unable to report to work	Wehman, 1981
Unacceptable personal appearance	Foss and Peterson, 1981
Transportation difficulties	Bernstein and Karan, 1979 Brickey and Campbell, 1981 Wehman, 1981
Opposing pressure from family and significant others	Kochany and Keller, 1981 Karan and Schalock, 1981
Lack of interagency support and/or cooperation	Karan and Schalock, 1981 Kochany and Keller, 1981
Supervisory vacillation	Kochany and Keller, 1981 Sowers, Thompson, and Connis, 1979
Medical problems	Clarke, Greenwood, Abramowitz, Bellamy, 1980
Lack of strength or stamina	Wehman, Hill, Goodall, Cleveland, Brooke, and Pentecost, 1982
Negative side effects of medication	Karan, Bernstein, Harvey, Bates, Renzaglia, and Rosenthal, 1979
Financial difficulties of the company	Wehman, 1981

Community Living Skills - Assessment Model

The term "independent living" has emerged as possibly the most dynamic development in the developmental disability field since the popularization of the normalization principle by Wolfensberger. To some, it is an emerging social or civil rights movement (Roberts, 1977). As a movement, it endeavors to counteract the deevaluation experiences of disabled persons including being regarded as inferior, useless, burdensome, unesthetic and generally "one down". This view is well summarized by Stoddard (1978) who states:

> "When those active in the disabled movement use the term 'independent living' they are referring to their ability to participate in society - to work, have a home, raise a family, and generally share in the joys and responsibilities of community life. 'Independent living' means freedom from isolation or from the institution; it means the ability to choose where to live and how; it means the person's ability to carry out activities of daily living that non-disabled people often take for granted" (p. 2).

The term community living skills (CLS) will be used throughout this section of the paper to distinguish its focus from the "independent living social movement" discussed above.

The focus and primary goal of CLS assessment and training is to develop specific behavioral skills associated with living successfully within less restrictive environments.

The significance of CLS assessment and training is reflected in three Public Laws: (1) Comprehensive Vocational Rehabilitation Act of 1978, (Title 7) which specifies that the rehabilitation goal of severely handicapped persons will include training in independent living skills; (2) Title III of P.L. 95-602, which establishes a new program--comprehensive services for Independent Living--focusing on persons who at present are too severely disabled to benefit from traditional vocational rehabilitation services; and (3) P.L. 94-142 that mandates training in self-help skills.

Considerable research has indicated that successful community living results from an interaction between persons and their environments (Eyman, Demaine & Lei, 1979; Heal, Sigelman & Switzky, 1978; Landesman-Dwyer, 1981; Romer & Berkson, 1981). The most important person-environmental factors affecting this person-environment interaction are outlined in Table 3.

Some of the person-environment factors outlined in Table 3 have been incorporated by one of the authors (RLS) into a systematic CLS assessment and training program. The program developed is based on a number of longitudinal studies associating community living placement success with variables related to placement environments, client characterisitics, client skills, and necessary support services (Note 3). The current CLS model is outlined in Figure 1. The most important aspects of the model include:

1. It specifies the goal of CLS training, which is to allow persons to live in less restrictive and more "independent" environments.
2. It outlines a progression of currently available living-training facilities.
3. It suggests the necessary support level required by the respective living-training level.
4. It summarizes the behavioral skill level appropriate to the progression.
5. It interfaces proposed skill training areas with the above referenced living training facilities.

The authors propose that an ecological approach to CLS assessment (and training) needs to combine the relevant person-environmental factors outlined in Table 3 with the CLS assessment and training concept diagrammed in Figure 1. When combined in this way, the relevant components of an ecological assessment model emerge. These components include environmental and person analyses. Each is discussed below. The staff competencies necessary

TABLE 3

PERSON-ENVIRONMENTAL FACTORS INVOLVED IN AN ECOLOGICAL ASSESSMENT

FACTOR	ASSESSMENT TECHNIQUE/INSTRUMENT	REFERENCES
Environmental Normalization	"Program Analysis of Service Systems" (Pass-3)	Wolfensberger and Glenn (1975) Demaine, Silverstein and Mayeda (1980) Hull and Thompson (1980, 1981) Flynn and Heal (1980)
Environmental Characteristics	"Family, Work, and Group Environmental Scales" "Community Oriented Programs Environment Scale Manual." "The Social Climate Scales"	Moos, (1974(a) Eyman, Silverstein, McLain & Miller (1980) Moos, 1974(b) Moos, 1974(c)
Care-Provider Characteristics	"Psychological Well-Being Scale" "Attendant Attitude Inventory" "The Management Practices Scale" "Over Protectiveness Scale"	Bradburn (1969) Butterfield et al. (1968) King, Raynes & Tizard (1971) Willer and Intagliata (1981)
Affiliation Patterns	Behavioral Observations	Landesman-Dwyer, Berkson and Romer (1979) Romer and Berkson (1981)
Continuum of Services	Service delivery description and listing of available living-training options.	Heal, Novak, Sigelman and Switzler (1980) Gollay (1981) Schalock, Karan and Harper (1980)

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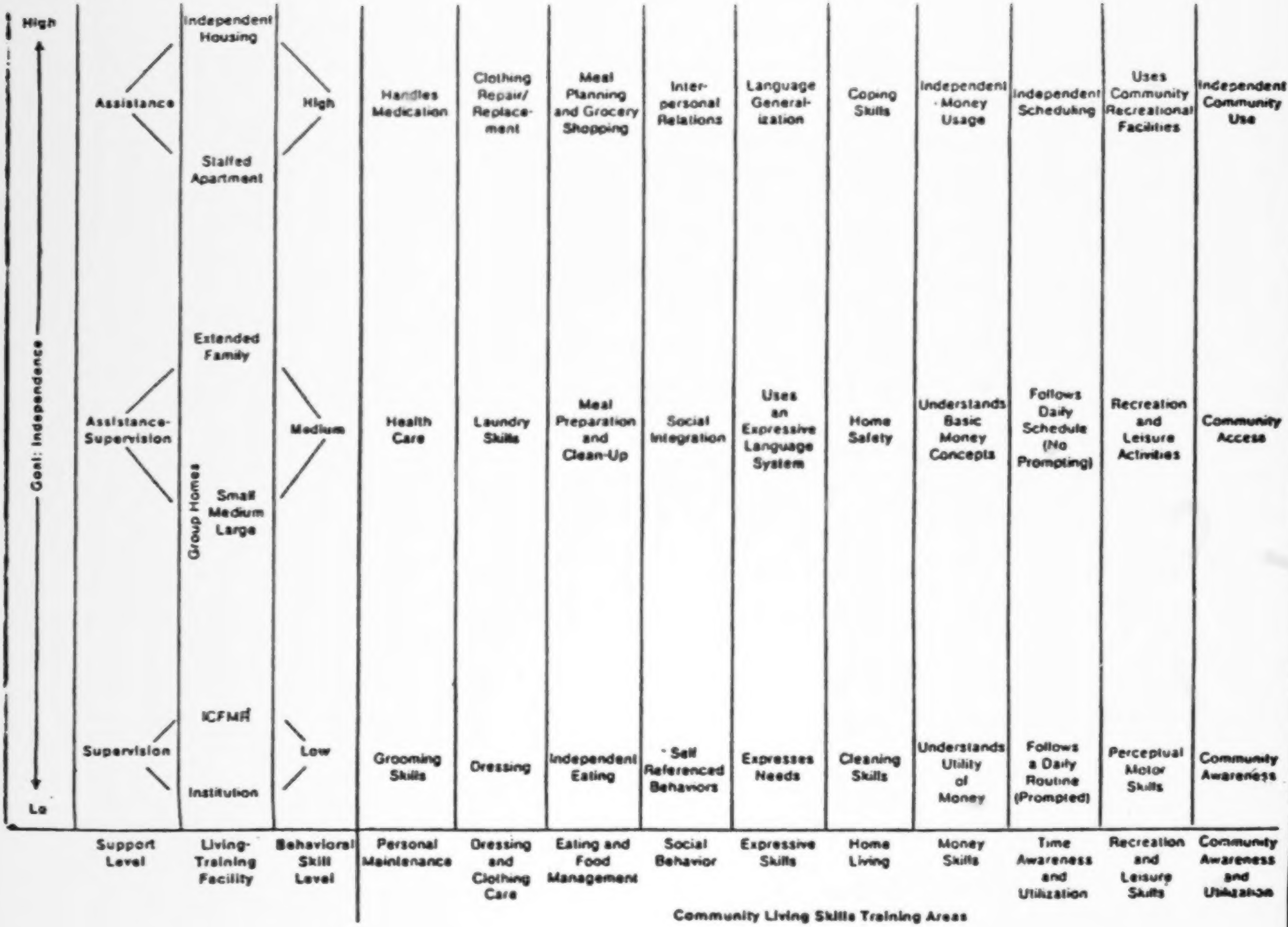

Goal: Independence	Support Level	Living-Training Facility	Behavioral Skill Level	Personal Maintenance	Dressing and Clothing Care	Eating and Food Management	Social Behavior	Expressive Skills	Home Living	Money Skills	Time Awareness and Utilization	Recreation and Leisure Skills	Community Awareness and Utilization
High	Assistance	Independent Housing Staffed Apartment	High	Handles Medication	Clothing Repair/ Replacement	Meal Planning and Grocery Shopping	Interpersonal Relations	Language Generalization	Coping Skills	Independent Money Usage	Independent Scheduling	Uses Community Recreational Facilities	Independent Community Use
	Assistance-Supervision	Extended Family Group Homes: Small Medium Large	Medium	Health Care	Laundry Skills	Meal Preparation and Clean-Up	Social Integration	Uses an Expressive Language System	Home Safety	Understands Basic Money Concepts	Follows Daily Schedule (No Prompting)	Recreation and Leisure Activities	Community Access
Lo	Supervision	ICFMR Institution	Low	Grooming Skills	Dressing	Independent Eating	Self Referenced Behaviors	Expresses Needs	Cleaning Skills	Understands Utility of Money	Follows a Daily Routine (Prompted)	Perceptual Motor Skills	Community Awareness

Community Living Skills Training Areas

Figure 1: A Community Integration and Skills Training Model

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to implement this model (along with the vocational assessment model discussed previously) are discussed in the final section of the paper.

Environmental Analysis

A comprehensive environmental analysis is beyond the scope of this paper and indeed, beyond our current conceptualization and methodology. However, a number of environmental characteristics can currently be analyzed, including available living-working options, actual behavioral skills required to adapt successfully to each of those living-training environments, relevant characteristics of those environments and the environments' "modifiability."

1. Available Options. A continuum of residential/programmatic services has been associated with both community (Gallay, Freedman, Wyngaarden & Kurtz, 1978), and programmatic (Schalock, Harper & Genung, 1981) success. It is a critical first step in the ecological assessment, since the available living-training options (such as those depicted in Figure 1) will establish the parameters for current and subsequent training activities (Brown, Branston-McClean, Baumgart, Vincent, Falvey & Schroeder, 1979). Interagency agreements or consortia formation may need to precede the analysis (Baum *et al*, 1981; Schalock, 1982).

2. Behavioral Skills Required. A second component of the environmental analysis relates to determining the behavioral skills the person needs to function adequately within the present and subsequent environments. For example, Figure 1 outlined the relationship based on research to date between living-training facilities and the behavioral skills required within each of the ten behavioral domains associated with increased independent living. In total, there are 174 specific behavioral skills distributed among the ten domains and three behavioral skill levels. The reader is cautioned that the

required behavioral skills are probably environment specific, and therefore the skills listed in Figure 1 may not generalize across all environments. However, once the required skills are identified, then the person needs to be assessed as to the presence or absence of each skill.

3. Environmental Characteristics. Evaluating environmental characteristics and behavioral requirements are the core ingredients of an ecological approach to assessment and training (Karan, 1981; Price, 1979). During the 1970's, Rudolph Moos (1974, a,b,c) developed a number of inventories that allow one to evaluate various "personality" characteristics of treatment environments including dimensions related to involvement, support, spontaneity, autonomy, practical orientation, personal problem orientation, anger and aggression, order and organization, program development, program clarity, and staff control. Once normed to a local program, inventory results can be used either to match persons to particular environments; to determine the attitudes of staff versus administrators and thereby reduce attitudinal discrepancies associated with staff burnout and attrition; or to identify staff training needs (Karan, 1981).

Additional environmental characteristics have been associated with successful community living and integration. In fact, "recent investigations indicate that environmental variables are better predictors about how individuals will behave than are individual characteristics" (Landesman-Dwyer, 1981). In a recent study of affiliation patterns, for example, setting variables accounted for sixteen to sixty-three percent of variance, independent of personal traits or mediating factors (Romer & Berkson, 1980a). The most important environmental characteristics from an ecological assessment point of view include:

- Normalizing qualities as typically assessed by Program Analysis of Service Systems-Pass-3 (Wolfensberger & Glenn, 1975) including either PASS-3 factor analytic items (Demaine, Silverstein & Mayeda, 1980), items selected from PASS-3 (Hull & Thompson, 1980, 1981), or normalized routines (Seltzer, 1981; Thompson & Carey, 1980).
- Staff attitudes including: (a) job satisfaction, standard setting equality with residents (Butterfield, Barnett and Bensberg, 1968; and Pratt, Luszcz and Brown, 1980); (b) shared values, goals and beliefs (Hasenfeld and English (1974); (c) over-protectiveness (Willer and Intagliata, 1981); and (d) tolerance of--and perceived ability to handle--maladaptive behavior (Schalock, Harper and Genung, 1981; Sutter, Mayeda, Call, Yanagi and Yee, 1980).
- Administration organization such as shared management (Cherniss, 1980; Raynes, Pratt and Rosis, 1977; monitoring (Schalock, 1982); and perceived management problems (Bruininks, Kudla, Wieck and Hauber, 1980).
- Family/benefactor involvement with persons residing within community based facilities (Edgerton, 1975; Henshel, 1972; Kurtz, 1975, Gollay et al., 1978; Reagan et al., 1980; Schalock, Harper and Genung, 1981).
- Peer support including peer relationships (Berkson and Romer, 1981), affiliation patterns (Landesman-Dwyer et al., 1979; Romer and Berkson, 1980 a,b) and agency-related friendships (Schalock, Harper and Carver, 1981). This peer support system is important to assess "given high staff turnover and the observation that retarded individuals spend more time with peers than with staff members" (Landesman-Dwyer, 1981).

4. The Environment's Modifiability. Thus far three aspects of the environmental analysis have been discussed. The analysis will be incomplete, however, if one assesses only the available options, behavioral skills required, and the environmental characteristices. The environment must also be assessed as to its modifiability or willingness to change. One might ask, "why is this a necessary part of the ecological assessment model?" Very simply, a person's movement into less restrictive, more independent environments require changes in both agency-level and systems-level service delivery. Hence, how amenable is that environment to change?

In a general sense, the potential for environmental change is related to the organization's readiness to change, the importance attributed to the change, the capability of persons involved to implement the change, and the anticipated advantages of the change (Baum _et_ _al_., 1981; and Beer, 1980). Specifically the ecological assessment should determine the environment's willingness or ability to:

- .Implement a community living skills assessment and remediation system.
- .Increase the normalizing qualities associated with their living-working options.
- .Commit resources, manpower and technology to the endeavor.
- .Physically modify or reduce its barriers and thereby either increase community awareness and utilization or the potential for performance.

Person Analysis

The second component to the proposed ecological assessment model involves first, assessing the person on those behavioral skills (identified in the environmental analysis) required by the person's current and subsequent living-training environment, and second, determining the person's prosthetic needs.

1. Behavioral Skills Assessment. Person characteristics account for from twenty-one to thirty-six percent of the variance in community placement studies (Gollay _et_ _al_., 1978; Hull & Thompson, 1980; Schalock, Harper & Genung, 1981). Characteristics associated with successful community placement reflect skills in pedestrianism (Page, Iwata & Neef, 1976; Vogelsberg & Rusch, 1979), constructive use of leisure time (Johnson & Bailey, 1977), and independent living skills related to personal maintenance, communication, food preparation, community utilization and clothing care and use (Schalock, Harper & Carver, 1981). Community placement failure has been related primarily to maladaptive behaviors (Sutter _et_ _al_., 1980), unacceptable behavior (Pagel & Whitling, 1978) and/or physical abuse and property destruction (Gollay _et_ _al_., 1978; and Schalock, Harper & Genung, 1981).

There are a number of behavioral assessment instruments that can be used to determine a person's functional skill level on those identified behaviors required by the person's current and subsequent living-working environments. These instruments are summarized in Table 4. The reader is cautioned first, to evaluate the test construction and standardization qualities of the instrument(s) chosen; second, to determine empirically that the behavioral domains assessed reflect the behavioral skills required by the person's environment; and third, to include the skills assessed in your programs training component.

2. Prosthetic Needs. Behavioral technology associated with behavioral skill assessment and remediation represents one aspect of the ecological client assessment. A second technique outlined in the section includes assessing the need for prosthetic devices or persons that would smooth the interface between the person and the environment at the point of interaction (Marks & Wade, 1981; Weisgerber, Dahl & Appleby, 1980). The development and use of mechanical prosthetics holds the promise of effectively removing many persons' handicaps. Assessing a person's need for mechanical prosthetics should be an integral part of the assessment procedure. These include at a minimum, aids:

- For the visually/auditorily impaired.
- For upper extremity difficulty.
- To facilitate communication.
- To facilitate locomotion.
- To facilitate cognitive processing.

Person prosthetics may be a new concept for the reader. The concepts of benefactor (Edgerton, 1975) or enabler-facilitator (Schalock, Karan & Harper, 1980) may be more familiar. The point is that literature clearly indicates that support personnel are required by many handicapped people so as to enable

TABLE 4

INDEPENDENT LIVING/COMMUNITY LIVING CURRICULUM ANALYSIS

Title [a]	Format [b]		Functional Level [c]	Environment	Content-Behavioral Skill Areas [d]								
	A	T			P.H.	S.C.S.	F.M.	S.B.	C.	H.L.S.	F.A.	R.L.	C.A.U.
An Activities of Daily Living Curriculum for Handicapped Adults (1978)		X	Moderate	Gr. Homes	X	X	X	X	X	X	X		X
Becoming Independent: A Living Skills (1978)	X	X	Moderate	Gr. Homes/ Apt.	X	X	X	X	X	X	X	X	X
Community Living Skills: Assessment and Training (Revised 1978)	X	X	Unavailable	Gr. Homes/ Apt.	X	X		X		X			X
Community Living Skills Screening Test and Remediation Manual (Revised 1980)	X	X	Mild to Severe	All living facilities	X	X	X	X	X	X	X	X	X
Home and Family Living Laboratory (1978)	X		Mild/Mod.	Indep. Housing				X		X	X	X	X
Independent Living Behavior Checklist (1979)	X		Mild to Severe	Gr. Homes/ Apt.		X	X	X	X	X	X		X
Independent Living Skills Curriculum (1981)	X	X	Mild/Mod.	Gr. Homes	X		X			X	X		
Skills to Achieve Independent Living (1975)	X	X	Mild/Mod.	Gr. Homes/ Apt.	X	X	X	X	X	X	X	X	X
Social Perceptual Training Kit for Community Living for Trainable and Educable Retarded Citizens (1978)		X	Mild/Mod.	School			X	X	X	X	X	X	X

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TABLE 4 (continued)

INDEPENDENT LIVING/COMMUNITY LIVING CURRICULUM ANALYSIS

Title [a]	Format [b]		Functional Level [c]	Environment	Content-Behavioral Skill Areas [d]								
	A	T			P.H.	S.C.S.	F.M.	S.B.	C.	H.L.S.	F.A.	R.L.	C.A.U.
The Individual Assessment and Program Guide (1976)	X		Moderate	Gr. Homes	X	X	X	X	X	X	X	X	X
Toward Independent Living (1980)	X	X	Special needs children	Natural home	X	X			X		X		
Training for Independent Living (1975)		X	Mild/Mod.	Apt. (P.M.)	X		X	X	X	X	X		X

[a] See adjacent page for Bibliography.

[b] A = assessment; T = Training.

[c] Functional level as stated in material.

[d] Behavioral Skill Abbreviations: P.H. = personal hygiene; S.C.S. = self case skills; F.M. = food management; S.B. = social behavior; C. = communication; H.L.S. = home living skills; F.A. = functional academics (usually time and money); R.L. = recreation and leisure; C.A.U. = community awareness and utilization.

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TABLE 3

BIBLIOGRAPHY FOR INDEPENDENT LIVING/COMMUNITY LIVING CURRICULUM ANALYSIS

An Activities of Daily Living Curriculum for Handicapped Adults (1978)
Author: Chuck Tiller
Address: Magic Valley Rehabilitation Services, Inc.
Rt. #2, Eastland Drive South
Twin Falls, Idaho 83301
Cost: $22.50

Becoming Independent: A Living Skills System (1978)
Author: Ann Westaway and Tony Apolloni
Address: Edmark Associates
P. O. Box 3903
Bellevue, Washington 98009
Cost: $225.00

Community Living Skills: Assessment and Training (Revised 1978)
Author: Robert L. Conroy
Address: Hope Enterprises, Inc.
1536 Catherine Street
P. O. Box 1837
Williamsport, Pennsylvania 17701
Cost: $6.75

Community Living Skills Screening Test and Remediation Manual (Revised 1980)
Author: Robert L. Schalock and Linda S. Gadwood
Address: P. O. Box 1146
522 East Side Blvd.
Hastings, Nebraska 68901
Cost: $40.00

Home and Family Living Laboratory (1978)
Author: Patricia Tramp
Address: Saint Paul Public Schools
Bridge View School
360 Colborne Street
St. Paul, Minnesota 55102
Cost: $15.00

Independent Living Behavior Checklist (1979)
Author: Richard T. Walls, Thomas Zanc, John E. Thuedt
Address: West Virginia Rehabilitation Research and Training Center
509 Allen All
West Virginia University
Morgantown, West Virginia 26506
Cost: $5.00

TABLE 3 - continued

Independent Living Skills Curriculum (1981)
Author: V. Taylor, D. Close, C. Carlson, D. Larrabee
Address: Materials Distribution
Rehabilitation Research and Training Center in Mental Retardation
2nd Floor Clinical Services Building
University of Oregon
Eugene, Oregon 97403
Cost: $52.75

Skills to Achieve Independent Living (1975)
Author: not listed
Address: Melton Peninsula, Inc.
1949 Stemmons Freeway, Suite 690
Dallas, Texas 75207
Cost: Teacher's Manual $5.95; Kit $245.00

Social Perceptual Training Kit for Community Living for Trainable and Educable Retarded Citizens (1978)
Author: not listed
Address: Educational Activities, Inc.
P. O. Box 392
Freeport, New York 11520
Cost: Book $10.95; Kit $225.00

The Individual Assessment and Program Guide (1976)
Author: Gary Fisher
Address: Developmental Services, Inc.
Residential Services Division
Box 1023
Columbus, Indiana 47201
Cost: $3.60

Toward Independent Living (1980)
Author: B. Baker, A. Brightman, S. Hinchaw
Address: Research Press
2612 North Mattis Avenue
Champaign, Illinois 61820
Cost: $7.95

Trainin for Independent Living (1975)
Author: Jim White
Address: Ventura County Association for the Retarded, Inc.
P. O. Box 646
1732 Lewis Road
Camarillo, California 93010
Cost: $20.00

them to maintain their semi or independent living placements (Crnic & Pym, 1979; Edgerton, 1975; Heal, Sigelman & Switzky, 1978; Sitkei, 1980). A recent five year longitudinal study by one of the authors (RLS) found, for example, that seventy-five percent of all persons living in "independent" housing received assistance from case management or program staff in one or more of the following areas: shopping, checkbooks, professional apppointments, leisure time, medication usage and employment applications. Many of these people would probably have failed in their placement without the assistance provided. Yet, with it they maintained their community living placement in a less restrictive environment. In reference to the assessment model proposed, one needs to determine whether such benefactors, enabler-facilitators, or assistants are available.

The Person-Environment Match

The reader should conceptualize at this point two profiles: one reflects the environmental analysis with its required skills and "personality characteristics"; the other reflects the person analysis summarizing behavioral skills and needed prosthetics. These two analyses represent two of the necessary three steps involved in the ecological assessment model. The third step involves their integration through a process referred to as "Client-Environment Match." The three steps are diagrammed in Figure 2.

The purpose of matching persons to appropriate environments should not be minimized. For example, it is becoming increasingly evident (cf. Gardner & Cole, 1981; Laski & Spitalnik, 1980; Menolascino, 1977, 1981; Szymanski & Tanguay, 1980) that community placement does not automatically insure the person's participation in the new living arrangement in a personally satisfying and productive manner. Too frequently, community or independent

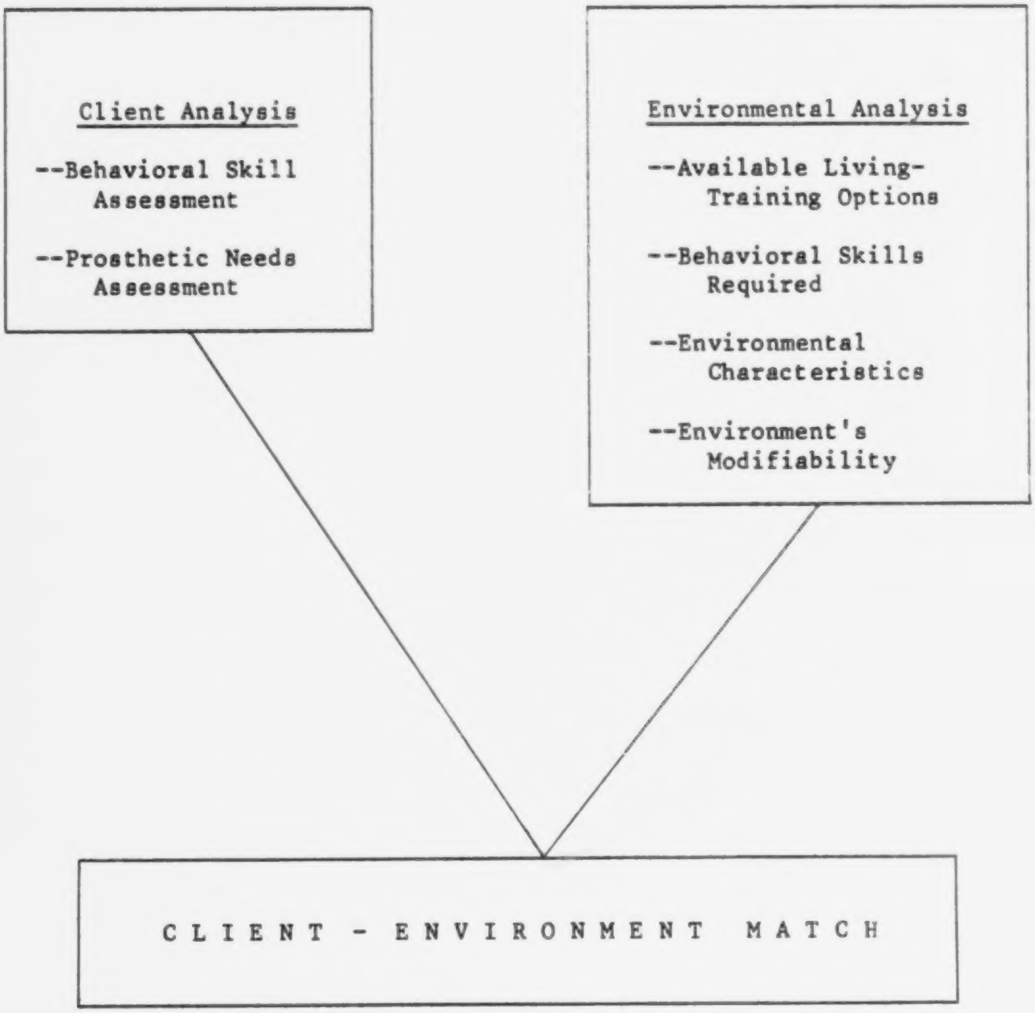
Client Analysis
--Behavioral Skill Assessment
--Prosthetic Needs Assessment
Environmental Analysis
--Available Living-Training Options
--Behavioral Skills Required
--Environmental Characteristics
--Environment's Modifiability
CLIENT - ENVIRONMENT MATCH

Figure 2: Three Components of an Ecological Assessment

living placement is made before the person has been prepared adequately for the new, generally stressful environment. As a result, many remain (or become) passive, dependent, unmotivated, socially inadequate, anxious, depressed, withdrawn and/or frequently aggressive towards self and others. Conversely, people need environments and experiences that provide challenge, self-esteem and self-expression (Baroff, 1974). The primary purpose, then, of matching a person to an appropriate environment is to insure the structure, security, challenge, success, and self-expression worthy of the person and conducive to his/her growth and development.

The mechanism that will facilitate a better person-environment match is the Individual Transition Plan (ITP) that has been used in both educational (Brown _et_ _al_., 1981) and habilitation (Schalock, 1982) settings.

The major components of the ITP process include:

1. _Establish Movement Goals_. Client progression from current to less restrictive and more productive environments requires developing and implementing training progressions. For community living, the progression could include group homes, extended (foster families), staffed apartments, and independent housing; for vocational training and placement, the progression could include extended employment, sheltered work and center industry or competitive employment (Schalock, Karan & Harper, 1980). If the ecological assessment was done correctly, and if both environmental and person profiles are available, then it should be evident into which environments the person should progress. The major criterion to keep in mind is, "is the person's current profile congruent with his/her _current_ living-work environments?" If so, then ITP goals would include upward progression. If not, then: (a) ITP goals should still reflect upward progression if the person's profile reflects

skills exceeding those required by the person's current environment; or (b) ITP goals should stress maintaining the current placement with appropriate intervention focusing on maintaining the placement and to prevent regression or placement failure (remember the person's need for self-esteem).

2. Develop Intervention Strategies. The intervention strategies chosen should be directed at reaching the movement goals discussed above. The strategies chosen should encompass: (a) behavioral skills training; (b) prosthetic procurement; and (c) environmental modification including increasing the environment's normalizing qualities and activities, providing staff training appropriate to developing community living skills, integrating client and systems-level case management, and/or physical barrier resolution. Each of these will be discussed more fully in the final section of this article which outlines the competencies required of persons doing the ecological assessment, ITP development and ITP implementation and evaluation.

Staff Competencies Required by the Ecological Assessment Model

The authors have chosen the term Diagnostic Programmer (DP) to encompass the concept and required competencies involved in ecological assessment and training. As mentioned previously, the major focus of this article has been on person and environmental assessment. In this section training activities will be related briefly to the assessment process.

The "diagnostic" function of the Diagnostic Programmer refers to the environmental and person analyses discussed in the previous sections. The development of individual and environmental profiles and their integration based on these analyses require the following competencies:

- Correct use of criterion or domain referenced assessment instruments such as those outlined in Table 2.
- A person-environmental analysis (see Table 3) including: (a) environmental qualities related to normalization, social climate and staff attitudes; (b) the availability of client affiliates and either a benefactor and/or enabler-facilitator; and (c) a determination of potential vocational and residential opportunities within the broader service delivery system.
- The ability to integrate data from the person and environmental analyses with interdisciplinary team evaluations (for example, medical, psychological, P.T., O.T., speech, rehabilitation specialists and parents).

The "programming" function refers to developing, implementing and evaluating the Individual Transition Plan (ITP). The two major sections of the ITP relate to establishing movement goals and developing intervention strategies. Movement goals will focus on an individual's progression within and among program components and various vocational and residential settings. The standards, values, and expectations of the settings should guide the objective to targeted for achieving the goals.

Intervention strategies should focus on reducing the "mismatch" between persons and their environments. This mismatch can be reduced through one or more of the following: (1) behavioral skill development; (2) prosthetic procurement; or (3) environmental modification. Each is discussed below, along with required competencies.

Behavioral Skill Development

Most readers are probably familiar with behavioral technology and the major strategies that facilitate behavioral change. For those not familiar, these strategies (each representing a DP competency) include: (a) skill acquisition strategies including prescriptive teaching, systematic feedback and repeated practice (Close, Irvin, Prehm & Taylor, 1978); (b) skill maintenance through self-monitoring or covert modeling (Mahoney & Mahoney, 1976); and (c) skill generalization involving practicing acquired skills across people, settings and situations (Rimm & Masters, 1979). Skill development training would focus on acquiring those skills required by the person's current and subsequent living-training placement.

Prosthetic Procurement

The DP has previously assessed the person's needs for either mechanical or personal prosthetics. Procurement and correct use of these prosthetics will include the following competencies:

- Keep abreast of developments in rehabilitation engineering and the electronics revolution (Plag and Santamour, 1980).
- Establish linkages between clients and persons who can act as benefactors, enabler-facilitators or assistants to help the client adapt successfully to the less restrictive, but often more demanding environment (Schalock, 1982).

Environmental Modification

Modifying the handicapped person's environment may not be easy, but it is essential if handicapped persons are to live in less restrictive, more productive environments. The authors suggest that the essence of "handicappism" is the lack of independence and productivity. Changing a person's environment will require at least the following DP competencies:

- Awareness of normalization principles and their relation to a (re)habilitation program's facilities and service delivery system.
- Familiarity of the relationship between environmental design and behavior.
- Knowledge of federal, state, and local legislation regarding guaranteed access and barrier free environments.
- Use of design specifications for barrier free buildings, recreation and transportation.
- Knowledge of organizational change strategies, including manpower development principles.
- Familiarity with work station and living environment modification designs and specifications.

In summary, (re)habilitation services for special need persons are entering a new era--one filled with challenges and potential perils, but hopefully, with considerable optimism. The authors have attempted in this article to expand the concept of assessment and remediation beyond the purview of individual clients and their handicapping conditions. The authors propose instead that the proper perspective, which will be that of the future, is to focus our assessment and remediation efforts on the person and his/her environment. When this is done, assessment evaluates both the person and the environment; remediation focuses on changing the person and the environment to facilitate the person's successful adaptation to community vocational and residential options that are less restrictive and more productive. The catalyst in this process is a Diagnostic Programmer who has the competencies to correctly match persons and appropriate environments.

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2. Nondiscrimanatory assessment of severely handicapped persons is discussed in Duncan, Sbardellati, Maheady and Sainato (1981), Laski (1979), and Salvia and Ysseldyke (1978).
3. The major results of these studies have been reported in Schalock and Harper (1977, 1978, 1979, 1981), Schalock, Harper and Genung (1981) and Schalock, Harper and Carver (1981).

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PART III - SELF-MANAGEMENT

The successful application of a wide range of therapeutic procedures to behavior problems of the mentally retarded is well documented. The major overriding theme of this literature, however, is that behavior disorders are controlled primarily through the use of externally managed procedures. Such procedures, however, implemented and directed by external agents suffer from a number of disadvantages particulary with respect to the maintenance and generalization of behavioral change. The limitations of externally managed behavioral procedures are highlighted further by the recent emphasis on normalization and deinstitutionalization. Such trends require skills of independence and self-management particularly if mentally retarded people are to be placed in normalized environments. In addition to countering many of the ethical, legal, and program implementation difficulties often associated with external behavior management, the use of self-management procedures also offers the possibility of improved maintenance and generalization.

In their article entitled "Teaching Self-Management Skills to Mentally Retarded: A Critical Review" Cole and Gardner reviewed the self-management literature as applied to individuals who are mentally retarded. They found that for at least some mentally retarded individuals, ranging throughout all levels of retardation and from ages of childhood through adulthood, various skills of self-management can be learned. Such results, independent of behavioral effects, offer additional economic, philosophic, legal, and professional implications.

The next two articles in this section are applications of self-management procedures for dealing with disruptive behaviors. Gardner, Cole, Berry, and

Nowinski, in their article entitled "Reduction of Disruptive Behaviors in Mentally Retarded Adults: A Self-Management Approach," describe and evaluate the effects of a self-management intervention package on the chronic and high rate verbally disruptive behaviors of two mentally retarded persons in a vocational training setting. The introducton and removal of the intervention package resulted in immediate and significant changes in the targeted behaviors. These treatment gains were maintained over a six-month follow-up period and suggest that mentally retarded persons with chronic high rate behavioral problems may be suitable candidates for cognitive behavior therapy approaches.

The final article entitled "Self-Management of Disruptive Verbal Ruminations by a Mentally Retarded Adult" by Gardner, Clees, and Cole describes the application of a self-management program which was used to eliminate a chronic disruptive behavior in the absence of an externally managed program containing aversive components. That the client learned and used various self-management skills offers encouragement to the potential for developing more comprehensive (re)habilitation programs for a range of behavioral difficuties presented by the mentally retarded.

TEACHING SELF-MANAGEMENT SKILLS TO THE MENTALLY RETARDED: A CRITICAL REVIEW

Christine L. Cole and William I. Gardner

The recent focus on normalization, along with the deinstitutionalization movement, has emphasized the need for increased skills of independence and self-direction among the mentally retarded. Placement in less structured and supervised living and program environments carries with it an implicit assumption that the mentally retarded will demonstrate a more active and responsible role in managing their own affairs.

Successful education and rehabilitation programs, thus, must actively teach skills of self-management to their mentally retarded clients and insure that these skills are used routinely in their daily activities. While there are no well-established training programs for teaching such self-management skills, there is an evolving literature which provides direction to the practitioner in this teaching endeavor. This article provides a description of this literature.

Components of Self-Management

Self-management, also termed self-control, self-regulation, or self-direction, generally refers to those behaviors engaged in by an individual with an intent to influence certain alternative behaviors available in his/her repertoire (Gardner, 1977). The "intent" aspect of self-management implies the occurrence of certain covert cognitive (self-statement) processes. Thus, cognitive behavioral self-management procedures are designed to teach the person to use these cognitive processes in a deliberate manner to influence others of his/her thoughts or feelings as well as his/her overt behavior.

Thoreson and Mahoney (1974), in an attempt to synthesize various writers' descriptions of self-management (self-control) (e.g., Bandura & Walters, 1963; Cautela, 1969; Goldiamond, 1965; Kanfer, 1971; Skinner, 1953), offered the following operational definition:

> A person displays a self-control when in the relative absence of immediate external constraints he engages in behavior whose previous probability has been less than that of alternatively available behaviors. (p. 12)

Thus, a person displaying self-control may work longer, talk softer, produce more, fight less, ignore taunts from peers, and the like.

Thoreson and Coates (1976) described several additional features related to the above definition of self-management. First, it is valuable to note that self-control is conceptualized as a variety of learnable skills rather than as a single personality trait or underlying characteristic of the person. Second, the fact that considerable emphasis is placed on cognitive (verbal mediation) processes involved in self-management does not imply that external influences are secondary or unimportant. Rather, there is a reciprocal interaction between external and internal influences. Third, variables in both the external and internal environments of a person may be targeted for change. Finally, the relative magnitude and variety of self-managed behaviors required of an individual tends to diminish over time. For example, considerable self-direction may be required initially for a mentally retarded person to independently engage in newly acquired interpersonal interaction behaviors. However, as these social skills are practiced and begin to come under the influence of other controlling factors which serve to increase the probability of their occurrence, deliberate self-management actions no longer are necessary.

Thus, cognitive behavioral self-management procedures which involve the use of skills of self-monitoring, self-evaluation, self-consequation, and/or self-instruction may offer promise to the mentally retarded individual who typically is a victim of external and internal conditions over which he or she seemingly has little or no control.

Self-Management and the Mentally Retarded

A number of recent studies lend support to the potential efficacy of treatment programs that actively teach self-management skills to the mentally retarded (see Table 1). Studies are reviewed that have investigated the separate components of self-monitoring, self-evaluation, self-consequation, and self-instruction. In addition, a review of package approaches that include one or more of these self-management components is presented.

Self-Monitoring

Self-monitoring refers to the systematic observation and recording of some aspect of one's own behavior. Self-monitoring has been demonstrated to have both assessment and therapeutic utility in use with nonretarded clients presenting a range of target behaviors (McFall, 1977; Nelson & Hayes, 1981). The present section reviews its use with the mentally retarded.

Recent research has demonstrated that mildly to severely retarded individuals are capable of self-monitoring a wide range of behaviors within various settings. However, it appears that at least minimal training in self-monitoring is required for the retarded to acquire such skills. Litrownik, Freitas, and Franzini (1978), for example, found that moderatey and severely retarded children did not spontaneously self-monitor when merely verbally instructed to do so. Yet, when exposed to a brief (1-hour)demonstration

TABLE 1

SELF-MANAGEMENT STUDIES WITH THE MENTALLY RETARDED

Reference	Setting	Dependent Measure(s)	Procedure(s) Used	N	Level of MR	Age Group
Altman, Bondy, & Hirsch (1978)	Home	Weight	Self-monitoring of food intake and weight External reinforcement Energy expenditure	2	mild; moderate	adolescents
Bauman & Iwata (1977)	Home	Housekeeping behaviors	Self-scheduling of housekeeping chores Self-recording	2	mild	adults
Buford (1975)	School; home	Weight	Self-monitoring of weight Energy expenditure External reinforcement	15	moderate	children; adolescents
Burgio, Whitman, & Johnson (1980)	Experimental room	Self-instructional verbalizations In-seat, Off-task Performance measures Children's distractibility rating form	Self-instructional package	2	mild; moderate	children
Connis (1979)	Job settings	Independent task change	Self-recording Pictoral cuing External reinforcement Corrective feedback	4	moderate; severe	adults
Foreyt & Parks (1975)	Home; school	Weight	Self-monitoring of food and weight External reinforcement Stimulus control	3	severe	adults
Franzini, Litrownik, & Magy (1980)	Sheltered Workshop	Temporal delay	Symbolic and live modeling Reinforced practice Experience with time passage Verbal prompting Persuasion External reinforcement Self-instruction	10	moderate	adolescents; adults

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TABLE 2 (continued

Reference	Setting	Dependent Measure(s)	Procedure(s) Used	N	Level of MR	Age Group
Frederiksen & Frederiksen (1975)	Special education classroom	On-task behavior Disruptive behavior	Self-determined token reinforcement	14	mild; moderate	children; adolescents
Gardner, Clees, & Cole (in press)	Workshop	Talking-to-self Talking-to-others Stereotypic/motoric movements Production rate	Self-monitoring Self-evaluation Self-consequation Self-instruction	1	moderate	adult
Gardner, Cole, Berry, & Nowinski (in press)	Workshop	Inappropriate verbal behavior	Self-monitoring Self-evaluation Self-consequation Self-instruction	2	moderate	adult
Gumaer & Simon (1979)	School; home	Weight	Self-monitoring of weight External reinforcement Energy expenditure	11	moderate	adolescents
Harvey, Karan, & Bhargava, & Morehouse (1978)	Sheltered workshop; residential setting	Violent temper outbursts	Self-monitoring of appropriate behavior External reinforcement Time-out for complaining or blow-ups Relaxational training Positive self-statements	1	moderate	adult
Heiman (1978)	Residential facility	Weight	Self-monitoring of weight Energy expenditure	15	mild; moderate	adults
Helland, Paluck, & Klein (1976)	Residential facility workshop	Work productivity	Self-delivery of reinforcement	6	mild; moderate	adolescents; adults
Horner & Brigham (1979)	EMR classroom	On-task behavior Disruptive behavior	Self-monitoring on-task behavior Self-reinforcement	2	mild	child; adolescent
Joachim (1977)	Residential facility	Weight	Self-monitoring of food intake and weight Weekly therapist contact	1	mild	adult

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TABLE 1 (continued

Reference	Setting	Dependent Measure(s)	Procedure(s) Used	N	Level of MR	Age Group
Johnston, Whitman, & Johnson (1980)	Experimental room	Problems completed Problems correct	Self-instructional package	3	mild	children
Knapczyk & Livingston (1973)	EMR classroom	Accuracy of assignments	Self-recording of task accuracy External reinforcement	13	mild; moderate	children; adolescents
Litrownik, Cleary, Licklitner, & Franzini (1978)	Experimental room	Standard setting responses	Self-standard setting	16	mild; moderate	children
Litrownik, Franzini, Geller, & Geller (1977)	Work training center	Delay choices made	Decisional self-control Temporal delay experience	20	mild	adolescents
Litrownik & Freitas (1980)	Experimental room	Beads strung	Self-recording of positive, negative, or neutral aspects of a bead-stringing task	30	mild; moderate	adolescents; adults
Litrownik, Freitas, & Franzini (1978)	Experimental room	Appropriate self-monitoring responses	Self-monitoring of consequences or problem completed	10	mild; moderate	adolescents, adults
Matson (1979)	Residential psychiatric facility	Negative statements	Self-recording of negative comments External reinforcement Modeling Instructions Performance feedback	1	moderate	adult
Matson (1981)	Outpatient clinic	Grocery-shopping skills	*In vivo* modeling Self-evaluation Feedback External reinforcement Instructions	10	mild	adults
Matson, Marchetti, & Adkins (1980)	Residential facility	Appropriate self-help behavior	Self-monitoring of weekly progress Self-evaluation Verbal prompting Modeling Manual guidance External reinforcement Shaping Fading Chaining	25	moderate; severe; profound	adults

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TABLE 1 (continued)

Reference	Setting	Dependent Measure(s)	Procedure(s) Used	N	Level of MR	Age Group
Nelson, Lipinski, & Black (1976)	Residential facility	Face-touching Object-touching Talking	Self-recording of positive, neutral, or negative behavior External reinforcement	15	mild; moderate	adolescents; adults
Nelson, Lipinski, & Boykin (1978)	Residential facility classroom	Appropriate verbalizations	Self-recording of appropriate verbalizations	4	mild; moderate	adolescents
Peters & Davies (1981)	Experimental room	Matching Familiar Figures Test	Self-instructional package	7	moderate	adolescents
Robertson, Simon, Pachman & Drabman (1[illegible])	Special education classroom	Disruptive behavior	Self-evaluation of classroom behavior Self- and external reinforcement Systematic feedback	12	mild; moderate; severe	children
Rotatori & Fox (1980)	Home; school	Weight	Self-monitoring of food intake and weight Emotional response routine Self- and external reinforcement Energy expenditure Stimulus control	12	moderate	adolescents
Rotatori, Fox, & Switzky (1979)	Home; school	Weight	Self-monitoring of food intake and weight Emotional response routine Self- and external reinforcement Energy expenditure Stimulus control	6	moderate	adolescents
Rotatori, Fox, & Switzky (1980)	Residential facility	Weight	Self-monitoring of food intake and weight Emotional response routine Self- and external reinforcement Energy expenditure Stimulus control	10	mild	adults

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TABLE 1 (continued)

Reference	Setting	Dependent Measure(s)	Procedure(s) Used	N	Level of MR	Age Group
Rotatori, Parrish, & Freagon (1979)	School; home	Weight	Self-monitoring of food intake and weight Emotional response routine Self- and external reinforcement Energy expenditure Stimulus control	6	mild; moderate	children
Rotatori & Switzky (1979)	School	Weight	Self-monitoring of food intake and weight Emotional response routine Self- and external reinforcement Energy expenditure Stimulus control (instruction via video tape)	6/6	moderate	adolescents
Shapiro & Klein (1980)	Psychiatric hospital classroom	On-task behavior Disruptive behavior Task performance and accuracy	Self-monitoring of on-task behavior Self- and external reinforcement	4	moderate	children
Shapiro, McGonigle, & Ollendick (1980)	Psychiatric hospital classroom	On-task behavior Disruptive behavior	Self-monitoring of on-task behavior Self- and external reinforcement	5	mild; moderate	children
Wehman, & Schutz, Bates, Renzaglia, & Karan (1976)	Sheltered workshop	Work productivity	Self-delivered reinforcement Self-determined reinforcement	3	mild; severe; profound	adults
Zegiob, Klukas, & Junginger (1978)	Residential facility	Nose-picking Head-shaking	Self-monitoring of inappropriate behavior	2	mild; moderate	adolescent; adult
Zohn & Bornstein (1980)	Sheltered workshop	Work productivity Work quality On-task behavior	Self-monitoring of work performance	4	moderate	adults

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training program, a similar group of subjects was able to acquire, maintain, and transfer self-monitoring skills. Shapiro, McGonigle, and Ollendick (1980) also found, with a group of mildly and moderately retarded children (ages 7 to 12), that general verbal instructions in self-monitoring were not sufficient for maintaining high rates of on-task behavior achieved in a token economy. However, when self-monitoring training was begun, on-task behavior immediately increased and remained at the previous high level.

Reactive Effects

A majority of studies that independently assessed reactivity of self-monitoring reported a therapeutic effect. Positive behavior changes reported include: (a) increased mean percent of housekeeping chores completed in two (nonretarded and mildly retarded) 20-year-old males (Bauman & Iwata, 1977); (b) increased proportion of beads strung in 20 moderately retarded adolescents and young adults (Litrownik & Freitas, 1980); (c) increased frequency of talking and decreased object-touching in 10 mildly to moderately retarded adolescents and adults (Nelson, Lipinski & Black, 1976); (d) increased frequency of appropriate classroom verbalizatons in four mildly retarded adolescents (Nelson, Lipinski & Boykin, 1978); (e) decreased nose- and mouth-picking or head-shaking in two mildly and moderately retarded female adolescents (Zegiob, Klukas & Junginger, 1978); and (f) increased work productivity in four moderately retarded adults (Zohn & Bornstein, 1980). Although Horner and Brigham (1979) reported initial increases in on-task and decreases in disruptive classroom behaviors in two mildly retarded boys with self-monitoring, the effects were short-term. Reinstatement of self-monitoring following a return to baseline showed decreased on-task for both subjects and increased disruptive behavior for one subject. This led the authors to suggest that reactive effects of self-monitoring may be transitory with the mentally retarded, which is consistent with short-term and variable results reported with the nonretarded population (Mahoney, 1974; Thoreson & Mahoney, 1974).

Valence. Various writers have suggested that such differential reactive effects obtained with self-monitoring actually may be related to a number of factors (Hayes & Cavior, 1977; McFall, 1977; Nelson, 1977). Nelson et al. (1976) investigated the possible relationship between reactivity and valence of the behavior being observed. Fifteen mildly and moderately retarded adolescents and adults self-monitored face-touching (negative), object-touching (neutral), or talking (positive). Results indicated a significant increase in talking and significant decrease in object-touching, but a nonsignificant decrease (i.e., in only three of five subjects) in face-touching. Similar results were obtained by Litrownik and Freitas (1980) with 40 moderately and severely retarded adolescents and adults using a bead stringing task. Subjects who self-monitored finishing (positive) significantly outperformed those who self-monitored not finishing (negative). Thus, it appears that valence of behavior can influence the reactivity of self-monitoring. Further, these results would suggest that therapeutic benefits may be enhanced by having the mentally retarded self-monitor positive and neutral, rather than negative, aspects of their behavior.

Accuracy.

The potential influence of client accuracy on reactivity of self-monitoring also has been examined. Most studies that evaluated accuracy reported high client-observer agreement (ranging from .80 to 1.00) (Bauman & Iwata, 1977; Horner & Brigham, 1979; Litrownik & Freitas, 1980; Litrownik et al., 1978;

Nelson et al., 1976; Nelson et al., 1978; Zohn & Bornstein, 1980). However, even when low levels of client accuracy (below .35) were observed (Shapiro et al., 1980; Zegiob et al., 1978), self-monitoring produced reactive effects. These results, consistent with those found in the nonretarded literature, suggest that self-monitoring may have positive reactive effects even when self-recording is inaccurate (e.g., Herbert & Baer, 1972; Lipinski & Nels, 1974). Nelson et al. (1978) further confirmed this notion of independence of reactivity and accuracy with their finding that self-monitoring training enhanced client accuracy but not reactivity in nine moderately and mildly retarded adolescents.

Self-Evaluation

Self-evaluation, or self-assessment, is the comparison of one's own behavior to a set of standards to determine whether various aspects of performance meet these standards. Self-evaluation obviously requires that a set of criteria be established against which an individual can "measure" his/her own behavior. Standards may be self-imposed or externally-determined. Self-evaluation also implies initial monitoring (self or external) of the behavior, since a response first must be observed/labeled before it can be evaluated.

No study was found concerning the independent reactive effects of self-evaluation procedures with the mentally retarded. However, studies assessing the reactivity of self-evaluation used in combination with other procedures did report positive results with this clinical group. Frederiksen and Frederiksen (1975) found, within a token reinforcement system in a special education classroom, that self-evaluation plus teacher-consequation was as effective as teacher-evaluation plus teacher-consequation in increasing on-task and decreasing disruptive behaviors of 14 mildly and moderately retarded adolescents. Robertson, Simon, Pachman, and Drabman (1979) demonstrated that self-evaluation of behavior as "good, " "okay," or "not good," which results in teacher-delivered and later self-delivered reinforcement, effectively maintained low levels of disruptive behavior in a special education class of 12 mildly to severely retarded children. Matson and his colleagues used two other self-evaluation procedures within multicomponent training packages: (a) having moderately to profoundly retarded subjects assess (e.g., good, bad, okay) their own daily or weekly performance in wardrobe/nightstand maintenance or showering (Matson, Marchetti, & Adkins, 1980), and (b) having mildly retarded subjects self-evaluate their shopping performance as "okay" (no improvement), "good" (performing at least one more step than at any other session), or "very good" (two or more steps performed correctly) following shopping skills training (Matson, 1981). Positive behavioral effects of self-evaluation, however, were not assessed independent of other procedures used. Thus, use of self-evaluation procedures may be a promising area, but there presently are no data that independently assess its reactivity with this population.

Similarly, little is known about the accuracy with which mentally retarded individuals self-evaluate their own behavior. In the Frederiksen and Frederiksen (1975) study discussed, self-evaluations correlated strongly with teacher-evaluations ($r = .8354$, $p < .001$), although self-assessments tended to be slightly more lenient (3 to 4%). Robertson et al. (1979) found that moderate student-teacher agreement (.69) during the initial self-evaluation phase rose to between .83 and 1.00 in subsequent phases. Thus, preliminary results suggest that, with adequate training experience, mentally retarded individuals can learn to accurately self-evaluate their own behavior.

Self-Consequation

Self-consequation may be defined as self-determination and/or self-administration of positive or negative consequences. Self-determination includes (a) self-selection of specific positive or negative consequences of behavior (e.g., self-selecting a reinforcer), and (b) self-selection of a criterion for reinforcement or punishment (e.g., "I have to complete 10 work units before the buzzer rings in order to get my treat; if I don't finish, then no treat.."). With the latter, the client determines "how much" of the specified behavior s/he must perform to obtain the reinforcement or to receive the punishment. In a preliminary investigation, Wehman, Schutz, Bates, Renzaglia, and Karan (1976) found that self-determined and self-delivered reinforcement resulted in increased work productivity over externally-determined reinforcement in a mildly and a severely retarded adult. Interestingly, the schedule of reinforcement maintained by the severely retarded subject was similar to that imposed in the previous conditions, while the mildly retarded subject reinforced himself on a continuous chedule. This concept also was evaluated by Litrownik, Clearly, Lecklitner, and Franzini (1978) in a study designed to assess moderately retarded children's ability to set their own standards for performance. Results indicated that these retarded children could self-determine appropriate performance standards based on a social referent (model) or on their own past performance.

A more common self-consequation procedure is the self-administration, or self-delivery, of positive consequences (self-reinforcement) or negative consequences (self-punishment) following behavior. In self-reinforcement, an individual self-delivers something pleasant (e.g.., candy, money, a token, self-praise) or removes something unpleasant (e.g., time spent on an aversive task is reduced, one's "frowning face" picture is removed from the work table) contingent on the occurrence of a desired behavior. Self-reinforcement presumably is accelerative, as it increases the likelihood of the behavior which it follows. In self-punishment, the person self-delivers something unpleasant (e.g., self-criticism, an additional 10 work units, a "frowning face" sticker) or removes something pleasant (e.g., relinquishes a token, pays a fine, cancels a shopping trip) contingent on the occurrence of an inappropriate behavior. Self-punishment presumably is decelerative, as it reduces the likelihood of the behavior which it follows. Notably absent from the mental retardation self-management literature are investigations of use of such self-administered aversive stimuli. The only exceptions are the studies of Gardner and associates (1983). In these studies, however, the effects are unclear due to the package programs used.

The behavioral effects of self-delivered positive reinforcement were independently assessed in only two studies, both within workshop settings. Helland, Paluck, and Klein (1976) used verbal instruction, modeling, and role-playing to teach moderately and mildly retarded adolescents/adults to self-deliver money or candy plus short self-compliments (e.g., "very good, Sally") for a paper collating task. Self-reinforcement significantly increased work productivity and subject-experimenter agreement was high (.83). In the previously mentioned Wehman et al. (1976) study, self-delivered reinforcement increased work productivity for two of three subjects over that observed during conditions of external reinforcement. For the third subject, a nonverbal, noncompliant, profoundly retarded adolescent, both self- and externally-delivered reinforcement increased work production by over 400% over baseline, although externally-delivered reinforcement produced slightly higher rates than self-delivered.

A majority of the studies used self-reinforcement in combination with other self- and externally-managed procedures. Horner and Brigham (1979), Robertson et al. (1979), Shapiro and Klein (1980), and Shapiro et al. (1980) all found continued maintenance of low levels of disruptive behavior and/or increased levels of on-task behavior when self-delivered reinforcement procedures were added to self-management programs in the classroom. Rotatori and his colleagues (e.g., Rotatori & Fox, 1980; Rotatori, Fox, & Switzky, 1979; Rotatori, Fox & Switzky, 1980; Rotatori, Parrish & Freagon, 1979; Rotatori & Switzky, 1979) include self-reinforcement procedures as one component of a behavioral weight loss package designed for and successfully used with the mentally retarded. Accuracy of self-reinforcement was assessed in a majority of these studies and ranged from approximately .78 to .94, suggesting that the mentally retarded can learn to accurately self-reinforce their own behavior.

Self-Instruction

Self-instruction, or verbal mediation, is defined as talking to onself overtly or covertly in an effort to initiate, direct, or maintain one's own behavior (O'Leary & Dubey, 1979). In a series of studies, Meichenbaum and his colleagues (e.g., Meichenbaum & Cameron, 1974; Meichenbaum & Goodman, 1971) demonstrated successful use of self-instruction with nonretarded children who engaged in hyperactive and impulsive behavior. With this procedure, children were taught a variety of self-statements which served to monitor, evaluate, consequate, and redirect their own behavior. Other examples of self-instruction include talking to oneself, making self-suggestions, and various self-distraction procedures (e.g., counting to 10 when angry).

Three studies assessing the reactive effects of self-instructional training packages with the mentally retarded reported positive behavior change: (a) decreased off-task behavior during academic assignments in two EMR students (Burgio, Whitman, & Johnson, 1980); (b) increased accuracy in addition and subtraction problems of three mildly retarded 9- and 10-year-olds (Johnston, Whitman, & Johnson, 1980); and (c) increased reflective responding on the Matching Familiar Figures Test in seven moderately retarded adolescents (Peters & Davies, 1981). Contrary to Luria's (1961) contention that retarded individuals are incapable of using language to self-influence and control their own behavior, these results suggest that the mentally retarded can in fact learn and effectively use such self-instructional skills.

Self-Management Packages

In many instances, behavior therapy programs for the mentally retarded that include self-management components have combined procedures from a variety of models. For example, behavioral weight reduction programs designed to teach mentally retarded individuals appropriate eating habits have combined self-monitoring, self- and external reinforcement, and stimulus control procedures (see Rotatori, Switzky, & Fox, 1981 for a review).

Examples of other combinations of procedures used to treat a variety of target behaviors in the mentally retarded include (a) videotaped and live modeling, reinforcement practice, experience with time passage, verbal prompting, social persuasion and reinforcement, and self-instructional procedures used to increase task persistence in five moderately retarded adolescents (Franzini, Litrownik, & Magy, 1980), (b) self-monitoring and self-evaluation, plus external social reinforcement, modeling, instructions, and performance feedback used to decrease negative self-statements in a 28-year-old moderately retarded woman (Matson, 1979), and (c) independence training, which consisted of in-vivo modeling, self-evaluaton, feedback, social reinforcement, and instructions used to train shopping behavior in 10 mildly retarded adults living in the community (Matson, 1981)..

These and other such multicomponent programs lend support for the potential value of a package approach that actively teaches the mentally retarded client self-management skills. However, a limitation of this developing experimental and clinical literature is the lack of demonstration of the usefulness of these self-management packages with mentally retarded adults presenting chronic behavioral and emotional problems. Harvey, Karan, Bhargava, and Morehouse (1978) described one of the few such multicomponent packages, including a self-managed token program, an externally-imposed time-out, relaxation training, and positive self-statements, which virtually eliminated aggressive outbursts in a 38-year-old moderately retarded woman in work and residential settings. A 1-year follow-up indicated maintenance of therapeutic gains. The therapists speculated that, although differential effectiveness of individual components of the package were not assessed, the cognitive change procedures were important factors contributing to maintenance of the positive behavior change.

More recently, Gardner, Cole, Berry, and Nowinski (page 201 of this volume) used a self-management intervention package to modify the high-rate verbal aggression of two moderately retarded adults in a vocational training setting. In observation of these and other mentally retarded adults presenting various difficulties of verbal and physical aggression, inappropriate expression of anger, and other states of heightened negative emotional arousal, the writers suggested that these adults most often reacted impulsively to sources of internal and external arousal or provocation. There was little observed to suggest that these retarded adults engaged in self-management activities, or that these skill were in their repertoires.

Based on these observations the subjects were taught to self-monitor (observe, label), self-evaluate (label as "good Adult Worker" or "not Adult Worker"), and self-consequate (self-deliver a positive reinforcer or self-punish with a brief time-out and response cost) their own work-related behavior. This self-managed intervention resulted in immediate and significant reduction in the target aggressive behaviors, and treatment gains were maintained during fading and at a 6-month follow-up.

An extension of this study to a second class of inappropriate verbalizations, that of disruptive verbal ruminations, was reported by Gardner, Clees, and Cole (page 225 of this volume). The intervention package that included training and in vivo practice of skills of self-monitoring, self-evaluation, self-consequation, and self-instruction, virtually eliminated chronic high-rate disruptive talking-to-self behaviors of a moderately retarded adult in a vocational training setting. In addition to influencing the specific dependent disruptive verbal rumination behaviors targeted for intervention, three collateral behaviors (talking-to-others, stereotypic/motoric movements, and production rate) not specifically treated showed positive effects. Follow-up data obtained 6 months and again 12 months after termination of the program revealed durability of intervention effects.

Summary of Findings

This literature provides encouragement for the use of self-management procedures with the mentally retarded. Results demonstrate that at least some mentally retarded individuals, ranging from mildly to profoundly retarded and from children through adults, can learn various skills of self-management. Further, preliminary evidence suggests that these self-management procedures are as effective as, or more effective than, similar externally-managed procedures in facilitating positive behavior change and insuring maintenance of this behavior change. Such results obviously offer, independent of behavioral effects, additional economic, philosophic, legal, and professional implications.

However, although encouraged by this preliminary research, the available results are limited in nature, allowing only minimal generalizability to various subjets and settings. A majority of these studies have involved mildly and moderately retarded males, have been laboratory studies, or have dealt with relatively minor problems presented by children in the classroom. Only three studies (involving a total of four subjects) attempted to deal with severe and chronic behavioral and emotional problems of mentally retarded adults (Gardner et al., 1983a; Gardner et al., 1983b; Harvey et al., 1978). Although promising, these results obviously must be replicated and extended to increase the utility of self-management procedures with this particular clinically relevant group.

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REDUCTION OF DISRUPTIVE BEHAVIORS IN MENTALLY RETARDED ADULTS: A SELF-MANAGEMENT APPROACH

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The presence of various forms of aggressive and other disruptive behaviors is a prevalent problem among the mentally retarded. Such behavioral difficulties have been cited (a) as a major reason for initial institutionalization (Thorsheim & Bruiniks, 1979); (b) as a barrier to community placement of the retarded (Eyman, Borthwick, & Miller, 1981); (c) as a reason for unsuccessful community placements and subsequent reinstitutionalization (Heal, Sigelman, & Switsky, 1978); and (d) as a factor contributing to vocational failure (Schalock & Harper, 1978). In addition, educators in community and residential facility training programs rank aggression and other disruptive behaviors as among the most difficult to manage in their mentally retarded studnets (Wehman & McLaughlin, 1979).

The successful application of a wide range of external behavioral procedures to such problems in the mentally retarded is well documented (e.g., Forehand & Baumeister, 1976; Schroeder, Mulick, & Schroeder, 1979). The major overriding theme of the behavioral literature, however, is that of controlling aggression primarily through the use of various externally managed punishment procedures (Gardner & Cole, 1983). The ethical, legal, and program implementation difficulties of such punishment approaches have been highlighted by a number of writers (e.g., Jansen, 1980; Repp & Deitz, 1978; Touchette, 1978). These difficulties emphasize the need for effective treatment alternatives which do not involve use of the physical guidance required in various overcorrection and seclusion and exclusion time-out programs.

Punishment and other external procedures implemented by external agents offer several additional disadvantages including overspecificity of effects, limited maintenance and generalization of behavior change, and the philosophic concern that the client has limited involvement in the behavior change process (Kazdin, 1975). Potential inadequacies of these externally managed behavioral procedures are highlighted further by the recent program emphasis on normalization and deinstitutionalization. This trend requires increased skills of independence and self-direction if the mentally retarded are to be placed in the least restrictive residential and program environments.

Behavior therapists, recognizing these limitations of externally managed treatment approaches and acknowledging both practical and philosophic concerns, have begun investigating the usefulness of various cognitive behavioral procedures. Not only do such procedures offset the philosophic and implementation concerns over external control, these also offer the possibility of improved maintenance and generalization of behavior changes over time and settings (Marholin, Siegel, & Phillips, 1976; Rosenbaum & Drabman, 1979; Stokes & Baer, 1977). In an early study, Frederiksen and Frederiksen (1975) found self-evaluation plus teacher-consequation within a token reinforcement system to be as effective as teacher-evaluation plus teacher-consequation in decreasing the disruptive classroom behavior of mentally retarded adolescents. More recently, Robertson, Simon, and Pachman (1979) demonstrated the positive effects of self-evaluation of specific behavior ("good," "okay," or "not good") and related self-delivery of reinforcement in a class of disruptive mentally retarded children. Shapiro and Klein (1980) and Shapiro, McGonigle, and Ollendick (1980) used a multicomponent intervention package to teach young mentally retarded/emotionally disturbed children to self-manage on-task behavior in the classroom, with the added effect of a decrease in disruptive behavior.

Harvey, Karan, Bhargava, and Morehouse (1978) described a multicomponent intervention program which virtually eliminated aggressive outbursts in a 38-year-old moderately retarded woman in both work and residential settings. The program included a self-managed token program, an externally imposed time-out, relaxation training, and positive self-statements. These studies, along with others investigating the effects of various self-management procedures on such behaviors of the mentally retarded adult as workshop production rate (Zohn & Bornstein, 1980), housekeeping skills (Bauman & Iwata, 1977), and independent task changes (Connis, 1979), all support self-management intervention as a promising area of investigation with this clinical group.

Observation of groups of mentally retarded adults presenting such chronic difficulties as verbal and physical aggression, temper outbursts, inappropriate expression of anger, and other states of heightened emotional arousal suggests that these clients most often react impulsively to sources of provocation. There is little to suggest that they engage in such self-management activities as self-observation, self-evaluation, self-instruction, or self-consequation, or that such skills are in their repertories.

The purpose of this study was to evaluate the effects of a self-management intervention package on the chronic and high-rate verbally disruptive behavior of two moderately mentally retarded adults in a vocational training setting. The rationale of the training program was to provide the mentally retarded adult with alternative self-directing behaviors which could effectively compete with the rather automatic influence of external provocation. Although various self-management procedures included in the intervention package have been used successfully with other clinical groups, the present study evaluates the applicability of these to mentally retarded adults presenting both cognitive and social skills deficits. Further, the study included procedures designed specifically to facilitate maintenance of obtained behavior changes following withdrawal of the intervention program.

Method

Subjects

Sue, a 27-year-old moderately retarded Down's Syndrome woman (WAIS full scale IQ of 42), and Roger, a 31-year-old moderately retarded man (WAIS full scale IQ of 45), both had been institutionalized in late childhood as a result of aggression and other problems of conduct. These difficulties had continued since admission across a number of settings within the facility, and had not responded successfully to a variey of previous psychiatric, psychological, and behavioral intervention attempts (e.g., psychotropic medication, personal counseling, or behavoral programs involving both reinforcement and punishment contingencies). Both clients had been enrolled in a vocational training program prior to the present study but were irregular in attendance, erratic in work production, and demonstrated highly disruptive social behaviors. Both had experienced occasional and lengthy suspensions from work programs due to staff difficulties in managing their behavior. As a result of their chronic conduct problems, both were placed in a special vocational training program designed for mentally retarded adults who possessed potential for functioning within a less restricitive community setting, but whose severe behavior problems currently prevented such placement.

Setting

The study was conducted within the special vocational training program located within the residential facility. Workshop sessions were held during 3-hour morning and afternoon periods, 5 days per week. Each a.m. and p.m. work period included a 15-minute break held in an adjacent break room. Work activities consisted of assembly and packaging of small hardware items. Eight other adults with chronic disruptive behaviors attended the training program.

Clinical Behavior Analysis

Both clients displayed high-rate disruptive verbal behaviors in the work setting, which included taunting and teasing, swearing, humming and singing in a loud disruptive manner, repetitive verbalizations, name-calling, threatening, and yelling and screaming. Observations during prebaseline indicated that, if permitted to continue these disruptive verbal behaviors, both clients were likely to escalate into such physically aggressive acts as tipping or throwing objects, and hitting, kicking, biting, pinching, or grabbing peers and staff.

These disruptive behaviors produced considerable peer feedback in the form of complaining, name-calling, crying, threatening, yelling, and other nonverbal signs of distress, along with frequent verbal and related social feedback from staff. Even though staff attention was provided for appropriate behaviors, it apparently was less influential than that experienced following misbehavior. As suggested by Martin and Foxx (1973), such "negative" feedback may well have served a strong positive reinforcement function. It was not possible, however, to control these sources of potential reinforcement. Even if possible, such an externally managed strategy would not have taught the clients alternative coping skills. As suggested earlier, previous use of behavioral procedures including differential reinforcement of other behaviors, response cost, time-out, and periods of suspension from program attendance had resulted in only erratic and temporary effects on these disruptive activities.

Dependent Variable

Since the clinical behavior analysis of both clients suggested a typical behavior chain of verbal disruption escalating into physical aggression, verbal disruption (as described above) was selected as the target (dependent) behavior. It was assumed that reduction of such behaviors also would serve to reduce the occurrence of more severe forms of aggressive behavior.

Observation Procedures and Interobserver Agreement

Both morning and afternoon work sessions were divided into 10-minute time periods. During baseline conditions, inappropriate verbal behaviors were recorded during two randomly selected 10-minute segments (prior to and following rest breaks) for each a.m. and p.m. work period. Each of the four daily 10-minute observation periods was divided into 40 15-second intervals. Occurrence or nonoccurrence of the target behavior within each interval was recorded. Behavior strength was defined as the percentage of occurrence of the target behaviors within these 160 daily 15-second intervals. During intervention conditions, both a.m. and p.m. work periods were divided into 15-second intervals. The target behavior was recorded during the intervals (except during trainer and/or client intervention) in which it occurred.

Observers were trained to identify inappropriate verbal behavior until a criterion of .85 or higher interobserver agreement was obtained. Interobserver reliability checks were obtained across all phases of the study. Percent agreement between two independent observers was defined as the number of agreements that the target behavior occurred within a 10-second interval divided by the number of such agreements plus disagreements per 10-minute session and multiplied by 100.

Experimental Design

A combined reversal and modified changing criterion design was used which consisted of seven within-subject conditions: Baseline I, Self-Management I (SM I), Baseline II, Self-Management II (SM II), Baseline III, Self-Management (SM III), and Self-Management Maintenance (SMM). Additionally, a 6-month follow-up observation was obtained. Within SM conditions, the initial criterion for reinforcement (amount of time working continuously without disruptive behaviors) was increased gradually, along with amounts of monetary reinforcement; a static rate of 1¢ per minute for appropriate work behavior was maintained across all criterion changes.

Experimental Conditions

Baseline 1. During baseline conditions, both clients received social praise and a monetary reinforcer on a variable interval 3-minute schedule contingent on such appropriate work and social behaviors as displaying positive affect, being on-task, working quietly, ignoring a provocative comment from a peer, and following staff requests without complaining. Money reinforcers were placed by staff in a money board adjacent to each client's work station and were available for spending during break periods. Roger remained under Baseline I conditions for 5 days. Sue began Baseline I conditions on

Roger's first day of intervention, and was provided a longer baseline period due to the initial variability in rate of inappropriate behaviors.

Inappropriate behaviors for both clients resulted in staff feedback, especially when these were likely to create general disruption or were deemed likely to result in physical aggression, that is, when these represented a potential threat to the safety of self or others.

Self-management training. Immediately following Baseline I and prior to the initiation of SM I, a 1-day training session was conducted individually for each client. The initial training sessions were conducted individually for each client in small training rooms adjacent to the workshop setting, and later were moved into the workshop for *in vivo* practice. Two graduate student research assistants provided the training. Training for both clients was presented in two morning and two afternoon sessions of approximately 1-hour each. Each client was taught to:

1. Self-monitor (observe, discriminate, label) such work-related behaviors as working/not working, yelling/not yelling, singing loudly/working quietly, and teasing/not teasing. Following modeling of specific behaviors, the client was prompted to label these (e.g., "Was I working or not working?", "Was I yelling or not yelling?"). The client then was guided into role-playing various of the behaviors and self-monitoring these.

2. Self-evaluate their own actions. Appropriate work-related behaviors were labeled by the trainer as "good Adult Worker" behavior and undesirable behaviors as "not Adult Worker" behavior. Numerous workshop scenes then were simulated; the client was encouraged to role-play a response to each and to evaluate his/her own actions as "good Adult Worker" or "not Adult Worker" behavior.

In addition, each client was provided a laminated 6 x 8 1/2-inch "good Adult Worker/not Adult Worker" display card to place in front of him/her at the work station. One side of the card was labeled "good Adult Worker" and contained a colored photograph of the client smiling, while the flip side was labeled "not Adult Worker" and contained a colored photograph of the client frowning. Several opportunities in role-playing various behaviors were provided, with the client intermittently labeling his/her own behavior (self-monitoring) and assessing it as "good Adult Worker" behavior or "not Adult Worker" behavior (self-evaluation) using the display card as a visual cue. Finally, each client was prompted to rehearse several prosocial alternatives to inappropriate behaviors, using self-instruction when appropriate.

3. Self-consequate his/her behavior, i.e., to self-deliver a reinforcer or to self-punish with a brief time-out and response cost contingent on self-evaluation of his/her own behavior. The trainer demonstrated that a "good Adult Worker" monitors and evaluates his/her own behavior and then pays him/herself for "good Adult Worker" behavior. A container of coins was placed on the client's work table and s/he was instructed to clip a coin to the "good Adult Worker" side of the display card. No coin was visible on the "not Adult Worker" side of the card. The trainer flipped the card several times to emphasize that "good Adult Worker" behavior (e.g., working quietly) earns money, while "not Adult Worker" behavior (e.g., yelling) does not.

Finally, each client was provided a timer and was taught to set it independently. The client was informed, "Whenever you decide to be a good Adult Worker until the bell rings, you'll earn a coin." The trainer initially modeled setting the timer and differentially consequating work behaviors: Appropriate behavior resulted in the trainer taking the coin when the bell rang, while inappropriate behavior was consequated by immeditely flipping the display card to the "not Adult Worker" picture and stopping the timer. Thus, "not Adult Worker" behavior was consequated with a time-out (i.e., temporary loss of opportuntiy to work and earn money) and a response cost (i.e., loss of minutes of "good Adult Worker" behavior accumulated prior to occurrence of the inappropriate behavior). Each client then rehearsed engaging in and labeling the behavior-consequence contingency.

In summary, the entire sequence of behaviors taught included (a) taking a coin, (b) attaching the coin to the "good Adult Worker" display card, (c) placing the "good Adult Worker" card in front of him/her on the work table, (d) setting the timer for the correct interval (determined by trainer), and (e) performing the work task. When the client had engaged in appropriate behavior throughout the time interval, s/he was encouraged to: (a) self-monitor (label), (b) self-evaluate (assess as "good Adult Worker"), (c) self-consequate (self-deliver the monetary reinforcement) the appropriate behavior, and (d) initite the sequence again. However, whenever the client engaged in inappropriate behavior s/he immediately was prompted to (a) stop working, (b) self-monitor (label), (c) self-evaluate (assess as "not Adult Worker"), (d) self-consequate (turn off the timer and flip over the display card) the inappropriate behavior, (e) rehearse with the trainer alternative appropriate behaviors and, when the client decided that s/he was ready to begin working again, (f) flip over the card to the "good Adult Worker" picture, (g) reset the timer, and (h) begin working.

An illustration of the trainer procedure following occurrence of an inappropriate behavior is provided:

T: Sue, what did you do?

S: I yelled at Joyce. (*Self-monitoring*)

T: Right, Is that good Adult Worker behavior or not Adult Worker behavior?

S: Not Adult Worker. (*Self-evaluation*)

T: Yes. What would a good Adult Worker do?

S: Work quietly (puts finger to lips).

T: Good! So what are you going to do next time?

S: Ignore Joyce and work quietly. (*Self-redirection*)

T: Great, Sue! Show me how you work quietly.

S: (Demonstrates)

T: Good worker, Sue! You're working quietly. I'll bet you're happy when you're acting like a good Adult Worker! Now when *you're* ready to be a good worker, flip over your card and set your timer. . .

Prior to re-entering the workshop setting, each client completed three successful trials of all of the steps in the behavior sequence.

Each client then resumed working in the workshop. Whenever inappropriate behavior occurred, the trainer prompted the client through the above described sequence, correcting errors and labeling and praising appropriate responses. Since *in vivo* events such as a threatening gesture from a peer now frequently preceded inappropriate behavior, these peer interactions served as the basis for rehearsal of alternative self-management behaviors. Whenever possible, the peer(s) who provoked the client participated with the client in rehearsal of more appropriate behaviors. Whenever these specific alternative prosocial interactions later occurred under real-life conditions, clients were prompted to label and self-praise them.

Self-management I (SM I). During the initial SM condition, the trainer continued to verbally prompt the client upon hesitation (e.g., to set the timer) or error (e.g., failing to attach the coin to the display card) in the behavior sequence. In addition, staff intervened at the end of each successfully completed work interval (when the bell rang) and upon every occurrence of inappropriate behavior. Here the client was prompted to self-monitor ("What did you do?"), self-evaluate ("Was that good Adult Worker behavior or not Adult Worker behavior?"), and self-consequate ("What do you earn?" and "Are you proud of yourself?"). As in training, the client rehearsed appropriate alternative behaviors upon the occurrence of inappropriate behavior. Trainer intervention was faded gradually as each client demonstrated independence in the various self-management activities.

As stated earlier, the initial criterion for reinforcement--amount of time working continuously without disruptive behaviors--was increased gradually from 5 minutes along with amounts of monetary reinforcement. A static rate of 1¢ per minute for "good Adult Worker" behavior was maintained across all criterion changes. Each criterion change was communicated to the client, e.g., "Roger, now you'll set the timer for 10 minutes. Remember, if you decide to be a good Adult Worker until the bell rings, you'll earn the dime."

Baseline II. Conditions present in Baseline I were reinstated. All materials used in self-management were removed. The total amount of money earned by each client was equivalent to the average amount earned during the preceding SM phase and was equal to or greater than the amount earned in initial baseline. This procedure was followed to insure that the clients were not penalized monetarily when SM procedures were removed.

Self-management II (SM II). This condition was identical to SM I except that, for Sue, the criterion for reinforcement was increased to 40 minutes of appropriate work behavior. Roger continued at a criterion of 30 minutes for 2 work days prior to being placed on the 40-minute criterion.

Baseline III. Conditions present in Baseline II were reinstated for two work periods. The total amount of money earned by each client was equivalent to the average earned during the preceding SM phase.

Self-management III (SM III). This condition was identical to SM II except that, for Sue, the criterion for reinforcement was increased to include the entire work period (i.e., two a.m. periods and two p.m. periods of approximately 60 minutes each). Roger continued at a criterion of 40 minutes for 1 work day prior to being placed on the entire work period contingency. Further, since it was now possible for a client to lose most or all of his/her earnings for the entire work period by engaging in a single inappropriate response near the end of the period, the response cost contingency was modified so that each occurrence of inappropriate behavior resulted in the loss of only 10¢ of the money which could be earned during that work period.

Self-management maintenance (SMM). During this phase, the timer and later the display card were removed. Each client was informed that the criterion for reinforcement and amount of reinforcement were identical to those in SM III. Instead of clipping money on the display card, the money remained in the container at the work station and was available for the client's management. Due to loss of research personnel, the data collection procedures followed in the preceding phases were not continued. However, treatment personnel did obtain total frequency counts of inappropriate verbalizations and monitored each client to insure his/her adherence to the contingency procedure. This phase continued for 2 months, at which time the study ended.

Follow-up. Data were collected for the target behaviors 6 months after the termination of SMM. Assessment procedures were identical to those employed during baseline.

Results

Reliability

The level of agreement between observers for inappropriate verbal behavior exhibited by Sue ranged from 77% to 100% and averaged 93.75%. Agreement for Roger ranged from 90% to 100% and averaged 97%. Reliability data were obtained during all phases except SMM.

Effects of Intervention

The effects of the self-management intervention program on the inappropriate verbalizations of both clients are presented in Figure 1 (Roger) and Figure 2 (Sue). Results for both clients, while quite similar in general features, are presented separately due to minor variations in the intervention programs.

Roger. As noted in Figure 1, Roger engaged in inappropriate verbalizations during a 5-day Baseline I period in 44.6% of the intervals observed, with a daily range from 12% to 76%.

Following initiation of SM I, Roger's rate of inappropriate verbalizations showed an immediate and significant reduction. As indicated earlier, recording of each occurrence of inappropriate verbal behaviors was obtained throughout the entire time period. The most conservative analysis of these intervention data involved deliberate selection of that 10-minute interval in each of the

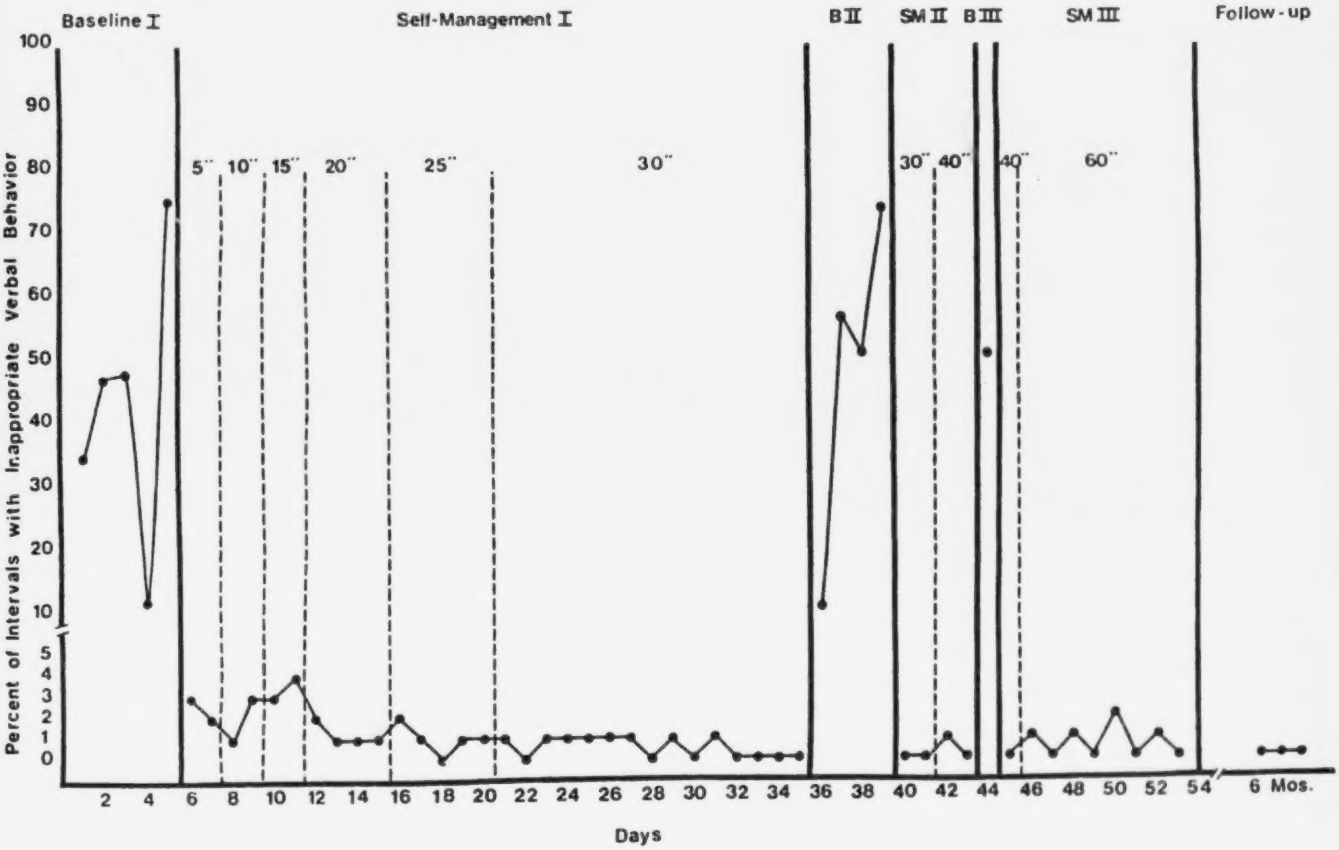

Figure 1: Daily Percent of Intervals with Inappropriate Verbal Behavior During Baseline, Intervention, and Follow-up Phases for Roger

four daily periods during which the greatest frequency of inappropriate verbalizations was observed. This analysis resulted in an average daily rate from 0% to 4%. During gradual increases in the criterion for self-reinforcement (from 5 minutes to 30 minutes), Roger's inappropriate verbalizations were maintained at the same low rate of occurrence. In fact, these verbalizations did not exceed 1% on any of the last 19 days of this treatment phase.

Introduction of Baseline II conditions resulted in an immediate and daily increase in the inappropriate verbalizations, averaging 48.3% and ranging from 11% to 74%. Initiation of SM II resulted in immediate elimination of the target behavior, with only one occurrence observed on the third of the 4 days of this intervention phase. A 1-day return to baseline (Baseline III) again resulted in an immediate increase of verbalizations, which accelerated in rate throughout the four work periods of the day. An average rate of 51% was obtained. Presentation of SM III intervention conditions again produced an immediate reduction in inappropriate verbalizations, with the target behavior occurring less than 1% of the time and ranging from 0% to 2%.

As noted earlier, the data collection procedure followed in previous phases was not continued in the SMM phase. Workshop personnel did keep total frequency data on the occurrence of inappropriate verbalizations. Although such data obviously must be viewed with caution, these data revealed a continuation of the low rate of target behaviors during the 2 months of SMM during which the timer and display card were faded. Inappropriate verbalizations ranged from zero to three daily occurrences. At the 6-month follow-up, using the data collection procedures followed in all phases except SMM, there were no occurrences of inappropriate verbalizations during the 3 observation days.

Treatment staff reported only infrequent occurrence of such behaviors during the previous 6 months.

Sue. During the 10-day Baseline I period, Sue exhibited inappropriate verbalizations in 49.7% of the intervals observed, with a daily range from 8% to 86%. As noted in Figure 2, an immediate reduction in Sue's rate of inappropriate behaviors was observed on introduction of SM I. The target behaviors were at near-zero level throughout all increases in criterion for self-reinforcement (from 5 minutes to 30 minutes). During 14 of the 20 days of this phase, the target behavior did not occur during the observation intervals. On return to baseline conditions (Baseline II), a continuous accelerating rate was observed, ranging from 2% on the initial day to 78% on the 4th (final) day.

Initiation of SM II produced an immediate reduction of inappropriate verbalizations. Such behaviors occurred only during the second of the 4 days of this phase, and then at only a 3% rate on that day. Final 1-day return to baseline conditions (Baseline III) again resulted in an immediate acceleration to 93% occurrence in inappropriate verbalizations. Introduction of SM III produced an immediate and virtual elimination of the target behaviors, ranging from 1% for each of the first 2 days to 0% for the last 2 days of this 4-day phase.

The low rate of occurrence of the target behaviors continued throughout the SMM phase. At the 6-month follow-up, inappropriate verbalizations were not observed to occur during the 3 observation days. As with Roger, treatment staff reported only infrequent occurrence of such behavior during the previous 6 months.

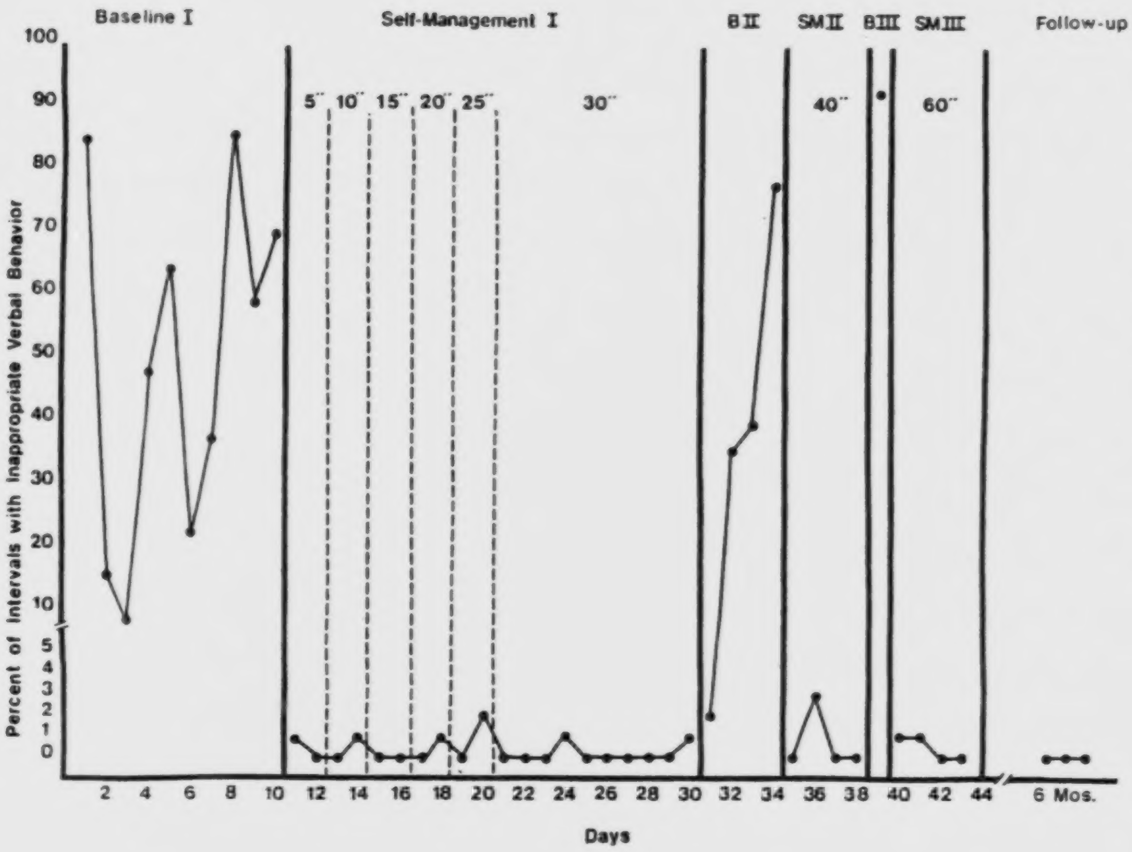

Figure 2: Daily Percent of Intervals with Inappropriate Verbal Behavior During Baseline, Intervention, and Follow-up Phases for Sue

Discussion

Results indicate that the self-management intervention package reduced the occurrence of inappropriate verbalizations in both moderately retarded clients. Initial introduction of treatment resulted in an immediate reduction in the target behaviors; removal and reintroduction of the intervention package on two subsequent occasions provided further support for its controlling effects. Such effects appear highly significant considering the magnitude and immedicacy of change and the intense and chronic nature of the target behaviors.

In addition, gradual fading during SMM of external prompts (timer and later the display card), which provided clients the opportunity to self-manage their programs, resulted in response maintenance and generalization over time of the behavioral gains observed during earlier phases of the study (Drabman, Hammer, & Rosenbaum, 1979). Shortly after follow-up data were obtained, Sue was placed in a community living arrangement and a production-based work setting. Roger was transferred out of the special training unit into a more independent living and job setting within the residential facility.

Several factors may have been responsible for both the initial and long-term success of the intervention package. First, any one, or combination, of the self-management components included in the package (e.g., self-monitoring, self-evaluation, self-instruction, cognitive rehearsal of coping sills, standard-setting, self-reinforcement, self-punishment) may have been differentially responsible for the positive behavior change observed. Future research must examine the relative importance of each treatment component. Second, redundant external cues in the initial phases of the program may have served to inhibit inappropriate behavior and/or may have functioned as discriminative stimuli for appropriate behavior. However, as stated, all external cues eventually were removed (with the exception of money, which was displayed throughout all phases of the study) without adverse behavioral effects. It is possible that the discriminative stimulus properties were assumed by other aspects of the work setting (e.g., work materials, staff) and functioned to control continued appropriate behavior following removal of these redundant cues (Rosenbaum & Drabman, 1979). Third, the more specific response contingency present during SM conditions (i.e., response cost plus time-out for inappropriate behavior, differential reinforcement for appropriate behavior) may have been a significant contributing factor independent of the self-management components. Future research, using such a design as an alternating treatments one (Barlow & Hayes, 1979), should compare the differential effects of the contingency imposed by external agents with the effects of the same contingency self-delivered by the client.

Finally, the opportunity to manage components of the program appeared to become gradually more valuable to both subjects. This was suggested by their spontaneous comments and associated positive affect during SM conditions, and their verbalized displeasure and other reactions of increased aggravation at having self-management opportunities removed. These reactions were most evident during the SMM fading period, when clients would proudly inform staff that they had "ignored a disruptive peer," "used self-control," were "good Adult Workers," and so on. Staff occasionally overheard clients spontaneously self-instruct (e.g., "Don't listen to Richard, " "Ignore Gayle," or "Self-control"). These observations would suggest that self-management skills not adequately internalized during previous return to baseline phases gradually gained sufficient strength to be used independently by the clients during SMM and following program termination.

Despite these possible explanatory limitations, the present study provides one of the few demonstrations of the reduction of chronic and high-rate disruptive behaviors of mentally retarded adults *in the absence of* an externally managed program containing aversive components. Also of significance was the findng that the behavior changes were maintained over time, following complete removal of the training program conditions. At a minimum, the results suggest that it is possible to significantly influence chronic disruptive behaviors of the mentally retarded *without aversive-dependent deceleration procedures used by external agents*.

Even more optimistically, this initial exploratory investigation offers encouragement for further study of the potential for teaching the mentally retarded with chronic behavior problems to become more involved in management of aspects of their own inappropriate behaviors. The fact that these two clients were able to successfully manage the requirements of the intervention program has, independent of any possible effects on their other behaviors, obvious economic, philosophic, legal, and professional implications.

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SELF-MANAGEMENT OF DISRUPTIVE VERBAL RUMINATIONS BY A MENTALLY RETARDED ADULT

William I. Gardner, Thomas J. Clees, and Christine L. Cole

Numerous writers have highlighted the major role assumed by various difficulties in the vocational adjustment of the mentally retarded (e.g., Eyman & Call, 1977; Floor & Rosen, 1975; Gold, 1975; Szymanski & Tanguay, 1980). These writers emphasize that, for a signficant number of mentally retarded adults residing in institutional and community settings, intellectual limitations, while a contributing influence, cannot be viewed as the primary cause of failure to attain an acceptable level of vocational, personal, and social independence. More specifically, a number of recent studies suggest a strong relationship between chronic behavior difficulties and failure to succeed in community vocational placements (e.g., Greenspan & Shoultz, 1981; Schalock & Harper, 1978; Seltzer & Seltzer, 1978).

Of these behavior difficulties, a frequently encountered and difficult to manage problem is that of disruptive inappropriate verbalizations. A range of potentially effective behavioral procedures are available for use by rehabilitation program staff in treatment of such conduct difficulties. The major theme of current behavioral literature, however, is that of staff management of such disruptive behaviors through various punishment procedures. In illustration procedures reported include contingent application of verbal reprimands (Schutz, Wehman, Renzaglia, & Karan, 1978), extinction and time-out (Mithaug, 1978), verbal warnings and suspension from work (Schutz, Rusch, & Lamson, 1979), and a "social feedback" package which included verbal reprimand, instruction, and differential reinforcement procedures (Dwinell & Connis, 1979).

Such approaches, while effective with the mentally retarded, offer several possible ethical, legal, and program implementation difficulties (e.g., Jansen, 1980; Repp & Brulle, 1981; Repp & Deitz, 1978). Additionally, in the writers' experiences, these procedures tend to contribute to dependency, to require excessive investment of staff time, to create social validation concerns (Kazdin, 1977; Kazdin & Matson, 1981; Wolf, 1978), and to correlate with such program results as overspecificity of treatment effects and limited durability and generalizability of behavior change (Jackson & Boag, 1981; Kazdin, 1975).

Recent reviews by Cole and Gardner (see page 177) and Jackson and Boag (1981) of the application of various cognitive behavioral procedures with the mentally retarded highlight the potential value of a self-management approach in reducing the above mentioned treatment limitations and concerns. Studies have demonstrated the positive effects of various self-management procedures on such behaviors of the mentally retarded adult as workshop production rate (Zohn & Bornstein, 1980), independent housekeeping skills (Bauman & Iwata, 1977), and independent task changes in a work setting (Connis, 1979).

A limitation of this developing experimental and clinical literature is the lack of demonstration of the usefulness of self-management procedures with mentally reared adults who present chronic problems of conduct. However, the previous study by Gardner and colleagues suggested that mentally retarded adults presenting chronic and high-rate aggressive behaviors may be suitable candidates for cognitive behavior therapy approaches.

The present investigation represents an extension of this previous work to a second class of inappropriate verbalizations, that of disruptive verbal ruminations. The study (a) evaluated the effects of a multicomponent self-management skills training package on the chronic and high-rate verbal ruminations of a moderately retarded adult in a vocational training setting, (b) provided preliminary impressions of the reactive effects of initial self-monitoring and self-evaluation training, (c) evaluated the effects of self-management intervention on collateral client behaviors not specifically targeted in the training program, and (d) assessed the long-term durability of treatment effects following withdrawal of the trainign package.

Method

Subject and Setting

The subject, Steve, a 26-year-old moderately retarded male (WAIS full scale IQ of 41), was institutionalized in late adolescence as a result of excessive behavioral difficulties. Since admission, these difficulties had continued across a number of settings within the facility and had not responded successfully to a variety of previous psychiatric, psychological, and behavioral intervention attempts. Steve had been enrolled in a vocational training program prior to the present study but was irregular in attendance, erratic in work production, and displayed disruptive social behaviors including verbal and physical aggression, repetitive disruptive verbalizations, and noncompliance. As a result of his chronic problems of conduct, Steve was placed in a special vocational training program designed for mentally retarded adults who possessed potential for functioning within a less restrictive community setting but whose chronic behavior problems currently prevented such placement.

The study was conducted within this vocational skills training program that was physically designed to simulate community-based sheltered workshops.

Steve was employed as an assembly piece worker and participated in the program during 3-hour morning and afternoon periods, 5 days per week. Each a.m. and p.m. work period included a 15-minute break held in an adjacent break room. Nine other adults with chronic disruptive behaviors attended the training program.

Clinical Behavior Analysis

During his work activities, Steve engaged in high-rate disruptive vocalizations (verbal ruminations and nonspeech sounds) that, in most instances, appeared self-stimulatory in nature and seemingly unrelated to current stimulation in his external environment. Even though not directed toward others initially, these behaviors were of a frequency, volume, and content to produce from peers such disruptive reactions as yelling, threatening, swearing, screaming, name calling and various nonverbal signs of distress. This type of peer feedback often required staff intervention as it resulted in an accelerated level of agitation of both Steve and peers.

As a result of observing Steve in the work setting, the workshop staff hypothesized that he was generally unaware of the high-rate and disruptive nature of his vocalizations. Further, staff speculated that Steve did not self-evaluate his behaviors as inappropriate even though these vocalizations had resulted in considerable negative feedback from staff and peers. He seemed to be influenced rather automatically by his own verbal ruminations, and when provoked by peers, to react to them in an impulsive manner. There was no evidence to suggest that he engaged in the self-management activities of self-monitoring, self-evaluation, self-consequation, or self-instruction, or that such skills were in his repertoire.

Dependent and Collateral Variables

Clinical behavior analysis suggested a typical sequence of excessive self-stimulatory vocalizations that provoked disruptive reactions from peers, which in turn served to accelerate the frequency and intensity of Steve's vocalizations and of stereotypic/motoric hand and arm movements. This "talking-to-self" behavior was selected as the major target (dependent) variable. Talking-to-self was defined as any vocalization that was (a) not a response to a question asked of Steve, (b) not accompanied by eye contact, or (c) nonverbal in nature (i.e., nonspeech sounds).

In addition, talking-to-others, stereotypic/motoric movements, and production rate were selected as collateral dependent measures in order to monitor possible changes in these behaviors concurrent with changes in the target behavior. Even though none of these collateral variables was a specific target of intervention, each is of concern both to the vocational rehabilitation practitioner and to the clinical researcher in evaluating the overall effects of the intervetion efforts. More specifically, talking-to-others, defined as any verbalizations other than talking-to-self, was monitored to insure that these appropriate verbal behaviors were not unduly inhibited by the intervention procedures designed to reduce inappropriate talking-to-self. Stereotypic motoric movements, defined as repetitive head and/or hand and arm shaking or flapping, were measured as a result of our prebaseline observations that such movements frequently accompanied increased talking-to-self. These increased verbal and physical movements appeared to interfere with Steve's work rate. Finally, production rate, defined as the number of assembly units completed per minute during a work day, was monitored due to our hypothesis that as the levels of talking-to-self declined, production rate would increase.

Observation Procedures and Interobserver Agreement

The two morning and two afternoon work periods were divided into 10-minute time segments. During all baseline and intervention conditions, talking-to-self, talking-to-others, and stereotypic/motoric behaviors were recorded during one randomly selected 10-minute segment each work period. Each of these four daily 10-minute observation periods was divided into 10 1-minute intervals. Occurrence or nonoccurrence of these behaviors within each 1-minute interval was individually recorded. Thus, it would be possible that none, all, or any combination of the behaviors would occur within a 1-minute observation interval. Behavior strength for each separate behavior was defined as the percentage of occurrence of that behavior across these 40 daily 1-minute intervals.

Observers were trained to identify the dependent and collateral variables until a criterion of .85 or higher interobserver agreement was obtained for each variable. Interobserver agreement checks for each dependent measure were conducted across all phases of the study in which data were obtained except, as described later, the self-management maintenance phase. Interobserver agreement checks were obtained for approximately 25% of the daily observation periods. Percent agreement between any two independent observers was defined as the number of agreements divided by the number of agreements plus disagreements per 10-minute session, multiplied by 100. Agreement between observers of work productivity measures was insured by having both staff and the workshop supervisor independently count and record work units completed at the end of each work period. Disagreements were resolved by recounting of completed work units.

Experimental Design

A combined treatment withdrawal and modified changing criterion design, consisting of the following within-subject conditions, was used: Baseline I, Training I, Baseline II, Training II, Self-Management I, Baseline III, Self-Management II, Self-Management Maintenance, and Follow-up. With Self-Management conditions, the initial criterion for reinforcement (amount of time working continuously without inappropriate verbal behaviors) was increased gradually. A static rate of 1¢ per minute for appropriate work behavior in the absence of inappropriate verbalizations was maintained across criterion changes.

Experimental Conditions

Baseline I (B I). During B I, Steve received social praise and a monetary reinforcer on a variable interval 3-minute schedule contingent on such appropriate work and social behaviors as being on-task, working quietly, following staff requests without complaining, ignoring disruptive behaviors of peers, and displaying positive affect. Money reinforcers were placed by staff in a money board adjacent to Steve's work station and were available for spending during break periods. Steve remained under B I conditions for two days. This relatively short period was deemed representative of Steve's disruptive vocalizations on the basis of prebaseline observation which revealed near continuous occurrence of the target behavior, both within and across daily work periods. Additionally, production rate had averaged between .30 and .40 units per minute for a number of weeks prior to the initiation of the study.

Training I (T I). Following the B I phase, Steve was trained to self-monitor and self-evaluate his verbal behaviors. This training, provided by a graduate student research assistant during a 30-minute session immediately preceding work Days 3 and 4, was conducted in a room adjacent to the work setting. During training, Steve was required to complete the assembly work tasks used in baseline. On each training day, Steve met a pre-established criterion of five consecutive self-monitoring and self-evaluation responses.

Self-monitoring, talking-to-self, and talking-to-others was taught by a combination of trainer modeling and client rehearsal, with corrrective and reinforcement feedback given. More specifically, the trainer initially modeled and labeled talking-to-self and talking-to-others and then directed Steve to make the discrimination. Praise and money (1¢) were provided for correct discriminations and corrective feedback plus additional rehearsal for inaccurate ones. Following acquisition of this discrimination, Steve was directed to label his own verbal behavior as talking-to-self or talking-to-others. Finally, a kitchen timer bell was established as a discriminative stimulus for self-monitoring. On each instance of Steve's verbal behavior, the trainer sounded the bell and directed Steve to correctly label his verbalizations.

In teaching self-evaluation, the trainer informed Steve that talking-to-self during work was not appropriate "Adult Worker" behavior as it interfered with his own work and that of his peers. Steve then was provided a number of self-monitoring and self-evaluation trials during which the trainer sounded the bell following Steve's verbalization and directed him to label and evaluate each occurrence as good "Adult Worker" or "Not Adult Worker" behavior. During self-monitoring and self-evaluation training, both praise and monetary reinforcers were provided contingent on accurate discrimination, regardless of talking-to-self occurrences.

Baseline II (B II). During B II, conditions identicial to B I were maintained within the workshop setting in order to assess the possible effects of T I training. As noted, T I training occurred on Days 3 and 4 during a 30-minute session prior to the start of a work day. Following training, Steve went directly to work and remained there throughout the work day. B II conditions were continued for an additional day following completion of T I.

Training II (T II). On Day 6, Steve was provided a full day of training within the work setting in the use of a self-management treatment package, which included self-monitoring, self-evaluation, and an additional component of self-consequation. A laminated 6 x 8 1/2-inch good "Adult Worker"/"Not Adult Worker" cue card was placed on Steve's work table. One side of the card was labeled "Adult Worker" and contained a colored photograph of Steve smiling, while the flip side was labeled "Not Adult Worker" and contained a colored photograph of him frowning. A container of coins was placed next to the cue card and Steve was instructed to clip a coin to the "Adult Worker" side of the display card. No coin was visible on the "Not Adult Worker" side of the card. The trainer flipped the card several times to emphasize that good "Adult Worker" behavior (e.g., working quietly) earns money, while "Not Adult Worker" behavior (e.g., talking-to-self) does not. Steve was prompted to label the cue cards and the related money contingency. Finally, Steve was taught to set the timer independently and was informed, "Whenever you decide to be a good 'Adult Worker' until the bell rings, you'll earn a coin." The trainer initially modeled setting the timer and differentially consequating work behaviors: Working quietly resulted in the trainer taking the coin when the bell rang, while inappropriate vocalizations were consequated by immediately flipping the cue card to the "Not Adult Worker" picture and stopping the timer. Thus, inappropriate vocalizations were consequated with a time-out (i.e., temporary loss of opportunity to work and earn money) and a response cost (i.e., loss of minutes of good "Adult Worker" behavior accumulated prior to occurrence of the inappropriate behavior). Steve then rehearsed engaging in and labeling the behavior-consequence contingency.

In summary, the entire sequence of behaviors taught included: (a) taking a coin, (b) attaching the coin to the "Adult Worker" cue card and placing the card in front of him on the work table, (c) setting the timer for a designated interval (determined by trainer and marked by a line on the timer), and (d) performing the work task. If Steve engaged in appropriate behavior throughout the time interval (i.e., until the timer bell rang), he was cued to (a) self-monitor (label), (b) self-evaluate (assess as good "Adult Worker"), (c) self-reinforce (self-deliver the monetary reinforcer) the appropriate behaviors, and (d) self-direct (initiate the sequence again). However, whenever Steve engaged in inappropriate vocalizations he immediately was prompted to (a) stop working, (b) self-monitor (label), (c) self-evaluate (assess as "Not Adult Worker"), (d) self-consequate (turn off the timer and flip over the cue card to expose the frowning face picture) the inappropriate behaviors and, when Steve decided that he was ready to begin working again, to (f) flip over the good "Adult Worker" picture, (g) reset the timer, and (h) begin working.

During this 1-day training session within the work setting, Steve met a pre-established criterion of five consecutive correct trials of all steps in the self-management sequence (i.e., accurate self-monitoring, self-evaluation, and self-consequation). A 2-minute reinforcement contingency was in effect during this training day.

Self-Management I (SM I). During the next few days of the SM condition, the trainer continued to verbally prompt Steve upon excessive hesitation (e.g., to set the timer, to pay himself) or error (e.g., failing to flip his cue card to the "Not Adult Worker" side, failing to attach a coin to the cue card) in the self-management sequence. In addition, the trainer intervened at the end of each successfully completed work interval and upon each occurrence of inappropriate vocalizations. Steve was prompted in each step of the self-management sequence, that is, to self-monitor, self-evaluate, and self-consequate. Such interventions typically involved less than 60 seconds of staff time. Trainer intervention was faded as Steve demonstrated independence in the various self-management activities. During the final days of this phase, staff intervention occurred only on those infrequent occasions when Steve failed to consequate his inappropriate verbalizations. As described earlier, the initial criterion for reinforcement--amount of time working continuously without inappropriate vocalizations--was increased gradually from 2 minutes. A static rate of 1¢ per minute for good "Adult Worker" behavior was maintained across all criterion changes. Each criterion change was communicated to the client, e.g., "Steve, now you'll set the timer for 5 minutes. Remember, if *you* decide to be a good Adult Worker until the bell rings, *you'll* earn the nickel."

Baseline III. Conditions in the work setting present in previous baseline periods, including the schedule and manner of reinforcement, were reinstated. All materials used in self-management were removed. The total amount of money provided Steve was equivalent to the average during the preceding SM phase and was equal to or greater than the amount earned in initial baseline. This procedure was followed to insure that Steve was not penalized monetarily when SM procedures were removed.

Self-Management II (SM II). This condition was identical to SM I except that the initial criterion for reinforcement was increased from 40 to 45 minutes. Also, as the criterion reached 60 minutes, the response cost contingency was modified so that each occurrence of inappropriate behavior resulted in the loss of only 10¢ of the money which could be earned during the work period. This contingency was added to insure that Steve would not lose most or all of his earnings for the entire work period by engaging in a single inappropriate response near the end of the period.

Self-Management Maintenance (SMM). During this phase, the timer and later the display card were removed. Steve was informed that the reinforcement criterion and the amount of money were identical to SM II. Instead of clipping money on the display card, the money remained in the container at the work station and was available for Steve's management. As a final step, the money container was removed. Due to loss of research personnel, the data collection procedures followed in the preceding phases were discontinued. Workshop staff did record total frequency of inappropriate verbal behavior and monitored Steve to insure that he followed the contingency procedure. This phase continued for 2 months, at which time typical workshop procedures were initiated. These consisted of staff intervention following major disruptive behaviors and a reminder that adult worker behavior was expected. The response cost contingency was removed after the money container was faded.

Follow-Up. Data were collected for the target behavior of talking-to-self 6 months and again 1 year after termination of SMM. It was not possible to collect production data as Steve was working on a different task. Although data on the other collateral behaviors were not formally obtained, observers did report only infrequent occurrences of either during the observation periods in which talking-to-self was recorded.

Results

Interobserver Agreement

Level of agreement between observers ranged from 80% to 100% for each of the behaviors of talking-to-self and talking-to-others and from 70% to 100% for stereotypic/motoric behavior. Interobserver agreements averaged 90% or above for each of these three behaviors. Level of agreement for production data averaged over 98%. Interobserver agreement was obtained during all phases in which data are reported except SMM.

Effects of Intervention

Talking-to-self. As shown in Figure 1, Steve's inappropriate talking-to-self averaged 97.5% during the 2-day B I phase. Following introduction to T I, talking-to-self decreased to an average of 83.3% within B II. Presentation of T II on Day 6, the beginning of SM I, resulted in a further immediate and significant reduction--to 10% occurrence across observation samples. Gradual increases in the criterion for self-reinforcement (from 2 minutes to 40 minutes), over the following 22 work days were accompanied by a reduction in inappropriate verbal behavior to near-zero levels of occurrence.

On withdrawal of the self-management package for 2 days during Baseline III, talking-to-self increased to 100% of the intervals sampled. Following reinstatement of the intervention program (SM II), there again was an immediate reduction in the target behavior. The final 2 days of the 5-day phase yielded a 0% occurrence.

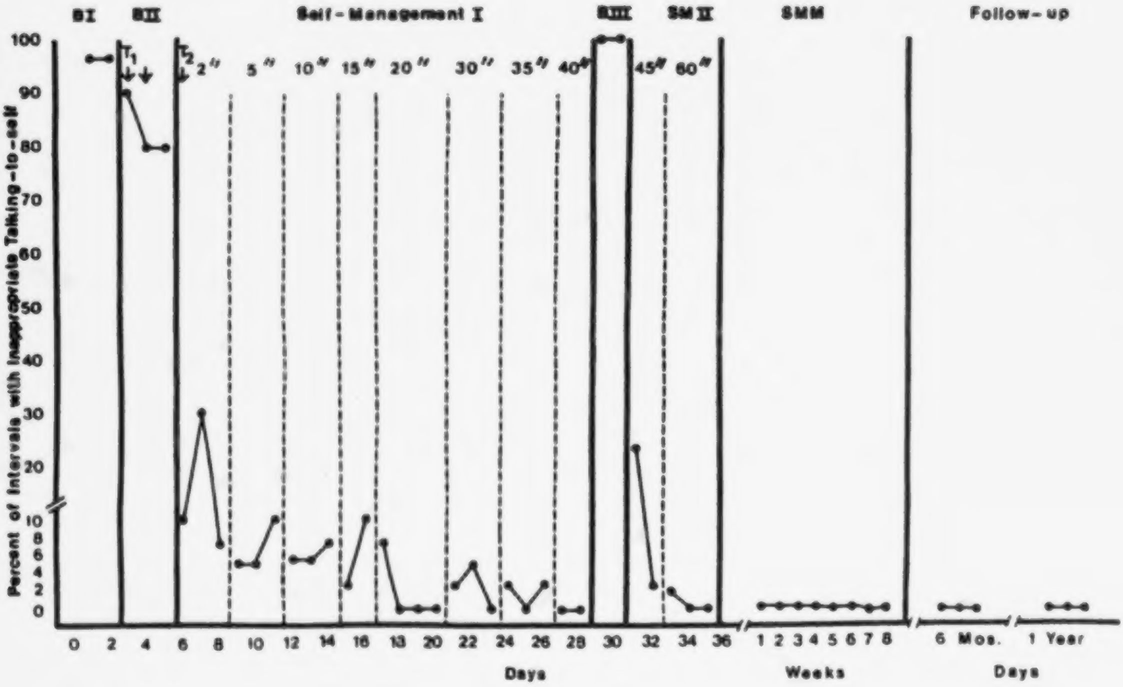

Figure 1: Daily Percent of Intervals With Inappropriate Talking-To-Self During Baseline, Intervention, and Follow-Up Phases

Throughout the 8 weeks of SMM, during which the timer, the display card, and finally the money container were faded, talking-to-self remained at a near-zero level of occurrence. Follow-up probe data collected by two independent observers at 6 months and again at 1 year following termination of SMM revealed no occurrence of inappropriate verbalizations. Anecdotal recording by workshop staff suggested only infrequent occurrence of talking-to-self throughout this year.

Collateral measures. Although not targeted for intervention, each of the collateral measures--talking-to-others, stereotypic/motoric movements, and production rate--showed some interesting effects. As noted on Figure 2, talking-to-others, which during prebaseline and baseline periods was deemed excessive by workshop staff, showed a decrease following introduction of intervention. The degree of change was less than that obtained with talking-to-self, although staff reported that the level of talking-to-others following treatment was not deemed excessive. The two classes of verbal behaviors were inversely related across conditions: Talking-to-others was lower than talking-to-self in baseline conditions and higher in self-management conditions.

As noted in Figure 3, stereotypic/motoric behaviors averaged 23% during B I and B II, with a daily range of 10% to 35%. These behaviors decreased gradually during SM I to the extent that no such behaviors were observed during 6 of the last 8 days of this intervention phase. Withdrawal of the self-management package in Baseline II resulted in an immediate increase in stereotypic/motoric behaviors to a level slightly above the previous baseline levels. Reinstatement of treatment in SM II resulted in a concomitant decrease in these behaviors to infrequent occurrence.

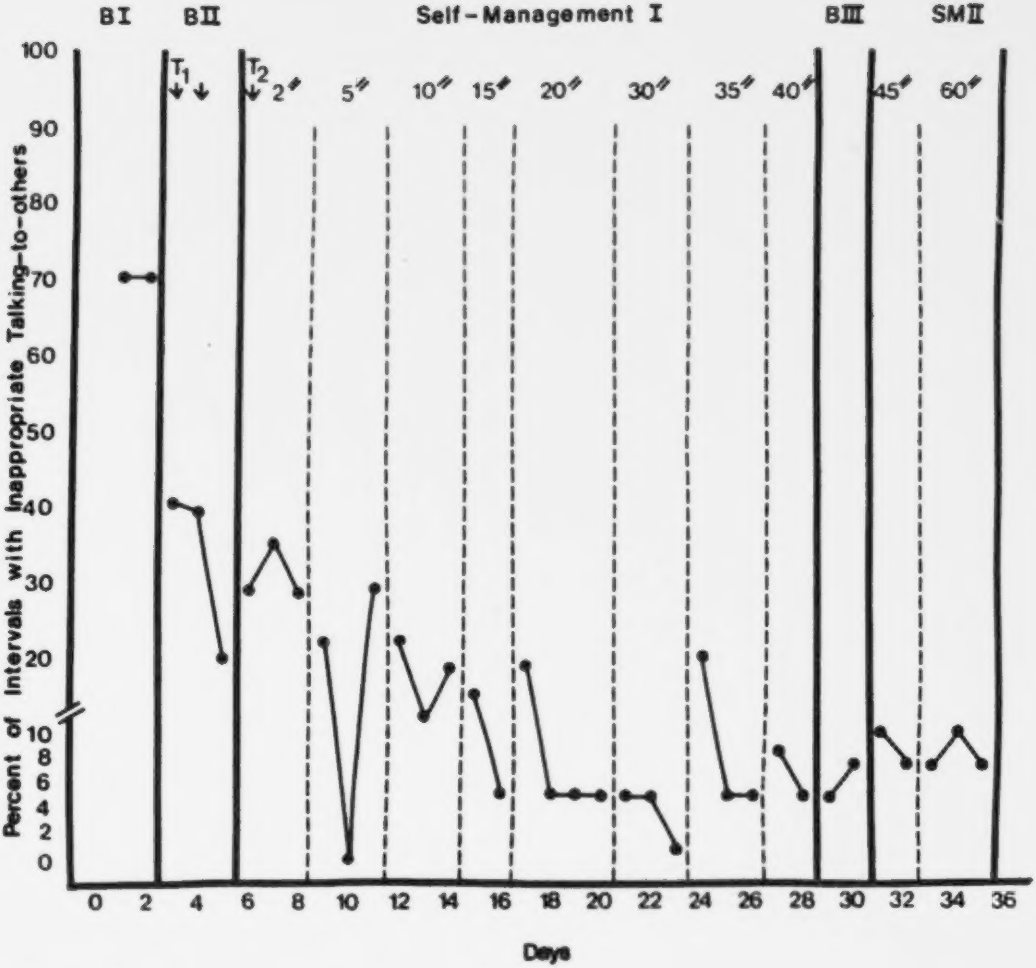

Figure 2: Daily Percent of Intervals With Talking-To-Others During Baseline, Intervention, and Maintenance Phases

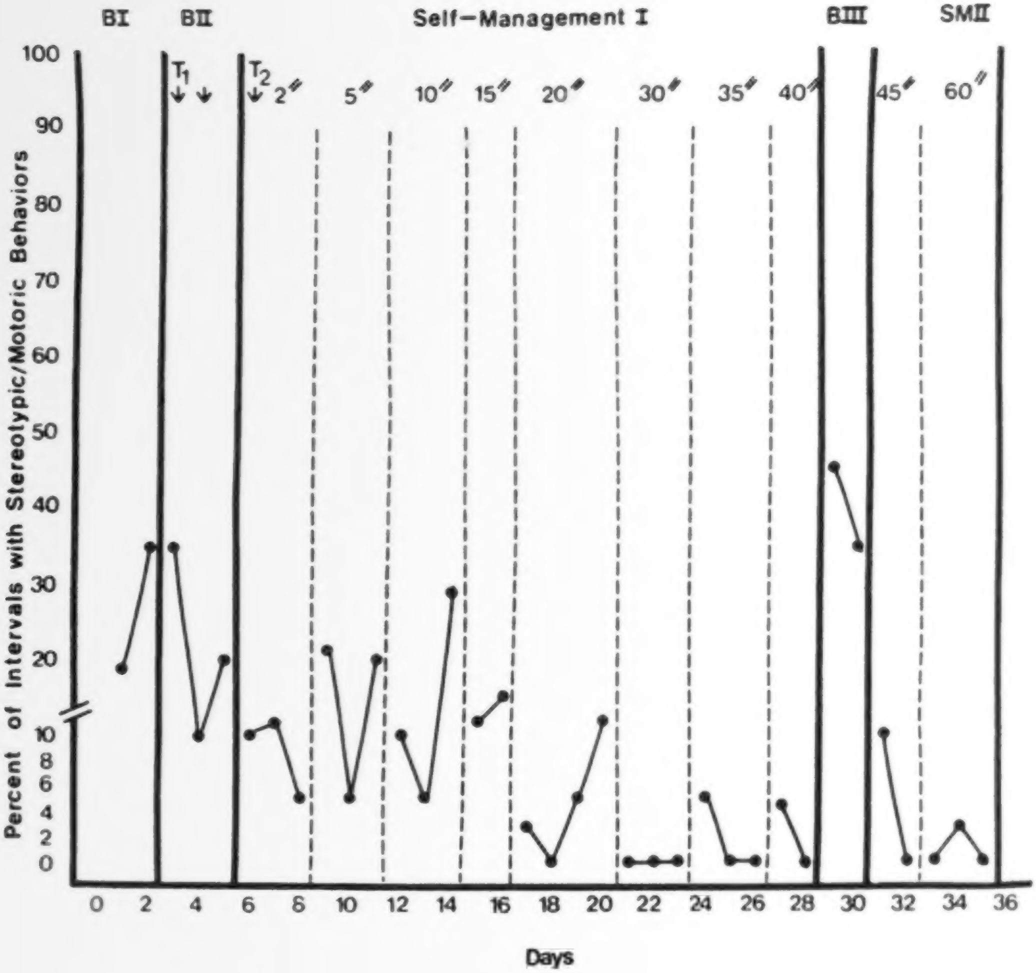

Figure 3: Daily Percent of Intervals of Stereotypic/Motoric Behaviors During Baseline, Intervention, and Maintenance Phases

As noted in Figure 4, production rate increased from a B I level of approximately .37 units per minute to .47 units following introduction of T I. After a small decrement during the initial criterion change phases of SM I, Steve's rate of production evidenced a gradual but steady increase across the remainder of the study. No follow-up data were available as Steve was assigned to a new work task.

Discussion

The intervention program was effective in virtually eliminating high-rate disruptive talking-to-self behaviors. The withdrawal design demonstrated the controlling effects of this intervention package. The changing criterion features of the procedures resulted in increasingly longer periods of time during which the target behaviors remained at a low level of occurrence. Additionally, gradual fading during SMM of external features of the program (i.e., timer, display card, money container) was accompanied by maintenance of the treatment effects over extended periods of time. Obvious potential threats to external validity resulting from the use of a single subject must be considered, however, in interpreting these findings (Hersen & Barlow, 1976). Replications with additional subjects with similar and different characteristics are needed to assess the generalizability of the results.

Although the major focus of the intervention program was on teaching Steve to monitor his own verbal behaviors, to evaluate these as appropriate or inappropriate, to differentially consequate these classes of behaviors, and, as a result, to self-inhibit inappropriate talking-to-self, the current experimental design does not permit isolation of the precise factors involved in the positive results obtained. Any one, or combination, of self-management

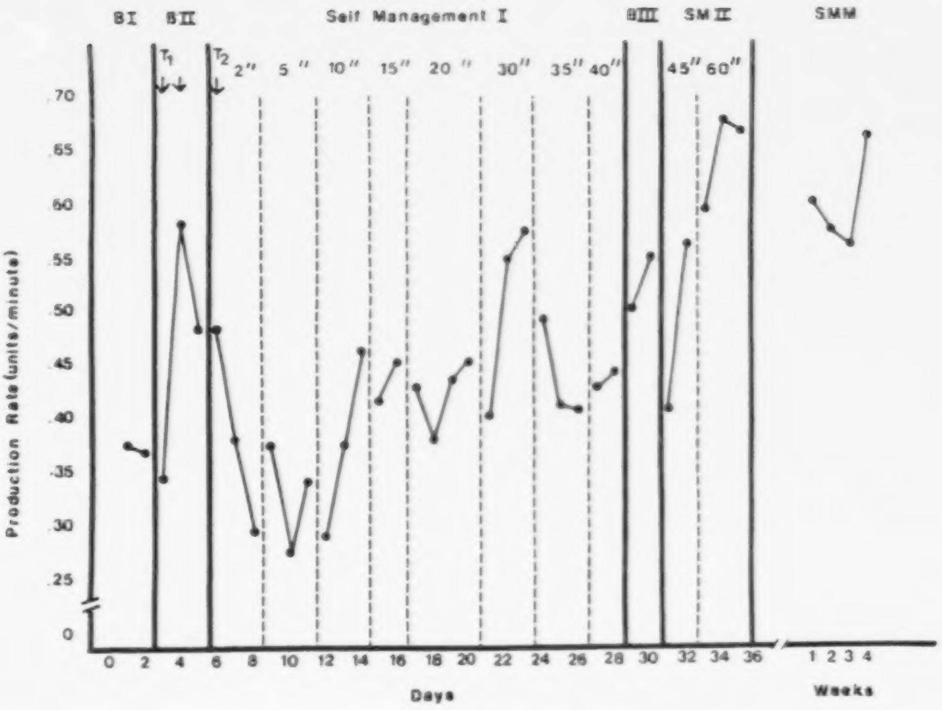

Figure 4: Daily Production Rate During Baseline, Intervention, and Maintenance Phases

components included (e.g., self-monitoring, self-evaluation, self-instruction, cognitive rehearsal of alternative behaviors, standard-setting, self-reinforcement, self-punishment, being in control) may have been responsible. Finally, redundant external cues (timer, display card, money container) or the more specific response contingency may have been contributing factors independent of the self-management components. Future research must identify the effects of specific components for obvious theoretical and practical reasons.

Also, it should be emphasized that the current study did not obtain a measure of the frequency with which Steve in vivo independently and accurately self-consequated his talking-to-self behaviors. Steve did demonstrate during training that, when prompted by staff, he could accurately label, evaluate, and consequate talking-to-self, talking-to-others, and working for specified periods of time without talking-to-self. Further, as staff prompts were faded during SM and SMM, Steve did independently and accurately follow the self-consequation and self-direction procedures. Even when talking-to-self occurred, he frequently independently and accurately completed the consequation procedures. However, as the data collection system followed in the study did not systematically record such occurrences of independent self-management behaviors, no precise statement can be made relative to the actual use of such skills. Future research should include such direct measures.

Although alternative explanations may be offered, the immediate reappearance in B III and the subsequent rapid elimination of talking-to-self following initiation of SM II could be accounted for by the removal and reinstatement of the opportunity for Steve to be in personal charge of the various components of his program. This was suggested by his comments and associated positive affect displayed during self-management conditions, and by his verbalized displeasure and associated reactions of increased agitation at having self-management program components (i.e., timer, display card, self-delivery of money) removed. Consistent with this explanation are the findings relative to maintenance of the SM II results during and following gradual fading in SMM of individual components (i.e., removal of the timer, later the display card, and finally the money management). It is speculated that during the training and fading phases, Steve gradually internalized the self-management skills. Further, these skills gained sufficient strength in the work setting to maintain appropriate behavior both during SMM and following program termination. Again, however, the viability of this interpretation must await further component analysis research which more adequately separates specific effects.

Effects of Self-Monitoring and Self-Evaluation

Of interest during T I was the short period of time required by this moderately retarded adult to demonstrate acquisition of self-monitoring and self-evaluation responses relative to his talking-to-self and talking-to-others behaviors. Training criteria were met in less than 1 hour of training. Although clinical constraints did not permit an experimental design to adequately evaluate the influence on the target behavior of teaching these initial self-management skills, results obtained do suggest some positive effects. Even though only required in the training setting, there was some indication in B II that Steve's experience with self-monitoring and self-evaluation generalized immediately and had an effect on his behavior in the work setting. Such reactive effects are consistent with findings reported by other investigators in studies involving less severe clinical problems presented by mentally retarded persons (e.g., Litrownik & Freitas, 1980;

Nelson, Lipinski, & Black, 1976; Zegiob, Klukas, & Junginger, 1978). Thus, these suggestive findings do lend encouragement to future research in which the magnitude and durability of self-monitoring and self-evaluation effects on clinically significant behavior problems of the mentally retarded can be assessed.

Effects on Talking-to-Others

The findings relative to talking-to-self and talking-to-others indicated that the two classes of verbal behavior were discriminated across the phases of the study. Additionally, talking-to-self, with excessively high response strength initially, showed a pronounced intervention effect, suggesting that Steve not only discriminated between the two verbal classes but also was more specifically influenced by the intervention contingencies associated with talking-to-self. Thus, it was possible to virtually eliminate one class of inappropriate verbal behavior without adversely inhibiting the more appropriate class, i.e., talking-to-others. Finally, although the appropriateness of the content of talking-to-others was not measured objectively, staff reported a trend throughout intervention of increased appropriateness.

Effects on Stereotypic/Motoric Behaviors

The occurrence and strength of stereotypic/motoric behaviors were highly correlated with talking-to-self. During periods of high-rate talking-to-self, stereotypic/motoric behaviors increased concomitantly. Such behaviors appeared to be correlated with an increase in Steve's level of agitation. When the content of self-talk suggested interpersonal conflict, (e.g., "I'll show that Mrs. L. She won't get away with that. I'll show her. I'll show her."), Steve's repetitive hand and arm movements increased. The same occurred at times when peers reacted in a disruptive manner to his self-talk.

Reduction of talking-to-self following intervention presumably removed the stimulus events which influenced the stereotypic/motoric episodes. Additionally, it is possible that the intervention contingencies functioned to inhibit the occurrence of stereotypic/motoric behaviors due to the relationship between these and talking-to-self. In any event, this inappropriate class of behaviors was virtually eliminated even though intervention contingencies did not target such directly.

Effects on Production Rate

Of especial significance to the vocational training setting was the gradual but steady increment in work productivity as the inappropriate behaviors declined. Production rate during the 4 weeks of SMM was over 60% greater than that present in B I. The increment was demonstrated although there was no specific treatment attention to production. Seemingly, as the disruptive talking-to-self declined, with a corresponding decline in stereotypic/motoric behaviors and in provocative reactions from peers, Steve directed more of his attention and effort to his work task. It is also possible that work activities increasingly acquired greater secondary reinforcement properties as a result of their frequent association with the self-delivery of money following periods of being a good "Adult Worker."

Conclusions

The potentially practical significance of the present study is emphasized in the relatively minor expenditure of staff training and monitoring time required. Following the initial training in the self-management procedures, only a short 30- to 60-second intervention period was required whenever Steve failed to meet program expectations. These interventions were only infrequently required, especially during the latter phases of SM I, SM II, and in SMM. Although not measured objectively, staff reported a significantly smaller investment of time than that required in prior attempts to externally manage Steve's disruptive behaviors.

The conceptual and philosophic significance of the study resides in its effectiveness in eliminating a chronic disruptive behavior in a mentally retarded person in the absence of an externally managed program containing aversive-dependent deceleration procedures. The fact that the client was able to learn and use various self-management skills offers encouragement to the potential for development of more comprehensive (re)habilitation programs for a range of behavioral difficulties presented by the mentally retarded.

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